

# THE IRON AGE

Established  
1855

New York, September 21, 1911

VOL. 88: No. 12

Published Every Thursday by the  
**DAVID WILLIAMS COMPANY**  
239 West 39th Street, New York

Entered at the New York Post Office as Second-Class Mail Matter.

Subscription Price, United States and Mexico, \$5.00 per Annum; to Canada, \$7.50 per Annum; to Other Foreign Countries, \$10.00 per Annum. Unless receipt is requested, none will be sent. Credit for payment will be shown by extending the date on the wrapper of your paper.

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## Wage Readjustments

### A Factor in the Steel Situation

#### An Effort to Raise Wire Prices—Frequent Cutting on Other Products

Taking the steel industry as a whole, the past week has brought little change in volume of orders or in prices. Rumors of further cuts on this or that product have been sifted down to what the trade has known well for weeks—that there is actually an open market in iron and steel. The reports that some large producers had given a free hand to salesmen in their respective districts scarcely needed denying; yet in some lines their effect was evidently unsettling.

The possibility of lower wages at steel works and rolling mills is being very seriously discussed. In 1909 10 per cent. reductions were made by the independent producers a few weeks after the price cuts of February; but the market broadened so rapidly under the lower prices for finished material that prices rebounded and the old wages were soon restored. Conditions attending the present open market do not point to a repetition of the course of prices in 1909, and in the opinion of some manufacturers it is inevitable that labor will share in the hardships the trade is undergoing. Denial has been made, however, of a report that a large Western mill has already made a beginning by putting in force a reduction in tonnage rates.

It is still the case that the reports as to volume of business which emanate from the Steel Corporation are more favorable than those coming from independent steel companies. The average of capacity employed by the various steel companies on domestic business continues to be about 65 per cent.

The wire trade appears to stand alone in an effort to establish higher prices, after the recent lapse to \$1.65 for wire nails and \$1.45 for plain wire, and a number of manufacturers are now asking \$1.70 for wire nails and \$1.50 for wire.

In the Central West, while the 1.20c. Pittsburgh basis for steel bars is commonly maintained, some good transactions have been put through at 1.15c., while farther west the use of a Chicago basing price is more general, resulting in sales that with an 18-cent freight deducted would represent 1.10c. Pittsburgh.

A 10 per cent. wage reduction at two mills in the Philadelphia district emphasizes the effect of recent declines in sheets. At 1.90c for No. 28 the market is now at the low level reached in the distressful year, 1898, while independent producers are paying \$5 a ton more for sheet bars than in 1898.

No indication is yet given that a new and lower card on merchant pipe will be issued October 1, when the present guarantee on prices expires. Naturally business is restricted meantime.

The B. & O. has given an order for 7000 tons of rails and the Buckhannon & Northern one of 4500 tons to be rolled at Pittsburgh. At Chicago the Davenport

& Muscatine Railroad has bought 3000 tons and the Birmingham, Bessemer & Ensley has placed 3200 tons with the Ensley mill. A 1500-ton order for the Stewart Sugar Company of Cuba will be rolled at Sparrows Point. The Grand Trunk contract for 10,000 tons is still pending, as are 10,000 tons for Peru and 30,000 tons for Argentina.

Pittsburgh reports some shading of the 1.35c price on plain structural material, 1.30c having been named on a large order for beams and channels up to 15 in. The contract has been let for the Keener building, Chicago, 3400 tons, and bids have been taken there this week on 6000 tons for the C. B. & Q. office building. The American Bridge Company will fabricate 7500 tons for the new open hearth plant and finishing mills of the Youngstown Sheet & Tube Company.

The foundry pig iron market drifts on, without any promise of greater activity. In the East there are signs that more iron will have to be bought for this year than was counted on, while in the West a good many consumers are expecting to carry over in their yards into next year iron bought for 1911. In southern Ohio an inquiry has come up for 20,000 tons of basic. At Pittsburgh a sale of 1000 tons has been made at \$12.60 at furnace, representing a decline of 40 cents.

Ferromanganese and ferrosilicon have advanced sharply. In the Central West a sale of 6000 tons of ferromanganese was made at \$37 for first quarter and \$38 for second quarter. Some producers have advanced their price to \$38.50 for next year. On an inquiry for 200 tons of 50 per cent. ferrosilicon for the first half of next year as high as \$60 Pittsburgh was named, as against a recent market of \$58.

A slump in tin at London has brought the New York price down to 38.87½c, as against 39.75c last week. Lead is lower in the West and copper is weak at 12¾c for electrolytic.

### Is Government Interference with Business Culminating?

This country has had practically eight years of turmoil and harassing interference with business. Barring loss of lives and actual destruction of material, the expense to the country could hardly have been greater if it had been engaged in actual warfare with some other power. Business enterprises have been interfered with, young men with well-considered schemes for business advancement have been hampered in carrying such projects into successful operation, the natural growth of the business of the country has been seriously impeded, and capitalists have practically been ordered not to make further investments in manufacturing and transportation projects. So much interference with business matters has been experienced that the whole country has become weary of the constant agitation.

It is impossible to conceive that a condition of this kind should continue indefinitely. All physical or mental developments or phenomena have their period of growth, culmination and decline. The country has seen a continuous increase in the activity of government agencies in interfering with business matters, and the past year has had crowded into it more developments of this character than any previous twelve months. We have had final stages in the prosecution of great corporations and we have had investigations of several corporations proceeding simultaneously. In addition to all the ordinary investigations by the Execu-

tive branch of the Federal Government, we have had this year a siege of Congressional investigation. And now President Taft has declared in a public address at Detroit that he proposes to continue to enforce the Sherman anti-trust act against "all the industrial companies with respect to which there is any reasonable ground for suspicion that they have been organized for a purpose, and are conducting business on a plan which is in violation of the anti-trust law." It would seem as if this condition of affairs must mean the culmination of the long period of business turmoil. We may be unduly hopeful, but we are strongly inclined to the opinion that a decline in this class of agitation will be perceptible in the near future. Of course some of the political agitators, whose activity in this direction has brought them prominence, may continue until the end of their political careers to play the same tune, but we believe it will be increasingly difficult for them to attract a following.

### To-day's and Other Price Levels

In a recent comment in these columns on the course of prices for rolled iron and steel it was stated that "while profits have been reduced, it is not claimed that the manufacturers of finished material have gone to the limit of their ability to sell at a profit, as has plainly been the case in the pig iron market." It need scarcely be said, however, that in several lines producers having to buy semi-finished product in the market find difficulty in getting a profit out of present prices for their final product. Intimation of the hardship in which one industry is already involved was given in our last issue in the statement that "the spread between the prices of sheet bars and sheets is probably less than has ever been known." Late in 1898, when the lowest prices ever known in this country were reached on nearly all iron and steel products, No. 28 sheets sold at 1.90 cents at Pittsburgh. The American Metal Market in referring to that low price (adding that on a few sales 1.85c. was touched) shows that it was done with sheet bars at \$16 as against \$21 and \$22 today. Even with labor cost—surprising as it may seem—\$2 less per ton of sheets now than in 1898, it is hard to see how independent sheet mills are living with \$4 to \$5 a ton handicap today as compared with the conditions under which this lowest sheet price in the history of the industry was last made in the United States.

Passing to bars, there need be no discussion of the small chance any mill has today on a cost of \$20 to \$21 at Pittsburgh for billets and a market for bars in which sales have been made as low as 1.28c. in the Chicago district, which would be equivalent to 1.10c. for a Pittsburgh mill. Nor is there any living profit for a wire mill buying its own rods at \$26 at Pittsburgh and selling plain wire at 1.45 cents per pound. Indeed, even for the big companies recent wire prices have left nothing to boast of in their scale of profits. In the wrought pipe and tube trade, moreover, where the competition is largely among companies having their own blast furnaces and steel works, while some have ore and coke also, profits have been far from satisfactory, while prices have gone close to the lowest on record.

It will be of interest to compare, as is done in the following table, today's prices of the principal iron and steel products with the high level reached in 1907, the low point in the open market of 1909, and the midway prices at the opening of 1910 and 1911 under cooperation among steel manufacturers. Pittsburgh prices



are given, except in the case of Southern foundry iron, for which the Cincinnati price is quoted:

*Fluctuations of Iron and Steel Prices in 1907, 1909, 1910 and 1911.*  
[Pig iron, billets and rails in dollars per gross tons; other products in cents per pound.]

	High, 1907.	Low, 1909.	Jan. 1, 1910.	Jan. 1, Sept. 20, 1911.	Sept. 20, 1911.
Bessemer pig iron.....	\$24.35	\$15.65	\$19.90	\$15.90	\$15.90
Basic pig iron.....	23.90	14.90	17.90	14.15	13.50
So. No. 2 foundry iron, Cinti.	26.00	14.25	17.25	14.25	13.25
Bessemer billets.....	30.00	22.00	27.50	23.00	21.00
Bessemer rails.....	28.00	28.00	28.00	28.00	28.00
	Cents.	Cents.	Cents.	Cents.	Cents.
Plates .....	1.70	1.10	1.55	1.40	1.30
Structural shapes.....	1.70	1.10	1.55	1.40	1.35
Steel bars.....	1.60	1.05	1.50	1.40	1.20
Sheets, No. 28.....	2.55	2.10	2.40	2.20	1.90
Tin plates.....	3.85	3.40	3.60	3.60	3.60
Fence wire.....	1.90	1.40	1.65	1.50	1.45

It will be seen that the heavier finished materials are \$7 to \$8 a ton less today than at the crest of the wave in 1907, while wire is \$9 and sheets are \$13 a ton lower. Billets and all pig irons on which there is a free market (Bessemer pig iron being scarcely a market factor today) are lower now than in 1909. While rails show a good profit and plates, shapes, bars, wire and tin plates have not yet fallen to the low levels of 1909, when independent steel manufacturers found it necessary to reduce wages, it is evident that further shrinkage in a number of lines would be a serious menace to the maintenance of steel works and rolling wages.

### The Coming Machinery Meeting

The joint meeting of the National Machine Tool Builders' Association and the National Supply & Machinery Dealers' Association to be held in New York October 10 to 12 should prove an interesting occasion, as it will be the first time for these organizations to meet concurrently. The decision to do so reflects credit on the officers of the two associations, as such a meeting should smooth over numerous rough places in the machinery business world. The matter of adopting a uniform contract between manufacturers and dealers is scheduled to come up at the meeting, and if this question alone is amicably settled it will have been worth while.

The past year has been a trying one for machinery makers and sellers, and the question of selling terms has been quite troublesome. At the last meeting of the Machine Tool Builders' Association a uniform contract was ratified, but in many cases the terms agreed upon have not been fully carried out. On the dealers' part, the matter of maintaining the manufacturers' prices has apparently been misunderstood, as in many cases dealers have cut their commissions on some makes of machines in order to induce trade in other directions. The result has been that manufacturers' representatives elsewhere have obtained the impression that the dealers making such reductions have been given special terms by the manufacturers. Again, other dealers have not rigidly kept their operations within the territory allotted to them. The dealers, too, have their complaints, one of which relates to the practice of some manufacturers in underselling the dealer in the latter's territory by offering the buyer terms more advantageous than those awarded to the dealer in a selling contract.

The making of uniform prices for machine tools is out of the question, regardless of the legality of such a course, but a proper price understanding between the manufacturer and seller can be arranged and adhered to, as can the other selling problems that arise. The proposition to have the association adopt punitive

measures toward a member who violates a contract would seem to be a correct solution of the matter.

Another matter to be taken up will be the requests of professional appraisers for information concerning prices of equipment in the works of their clients. Trouble and expense to manufacturers and dealers are involved in the furnishing of these details. The proposition is to establish a standard fee as compensation. In the routine of its work the appraisal company has its men go through a plant, placing valuations on everything in much detail. Equipment is often an unknown quantity to the experts, and it has come to be their custom to send lists of tools to the machinery people, with requests for the price at which each item was sold. The task imposed may be a formidable one. With new tools it is not difficult, but usually the inquiries pertain to older machinery, which necessitates the unearthing of records extending back over years. While the inclination is to decline to undertake the labor, a duty to a customer, the client of the appraisal company, usually prevails.

If the two associations would agree to establish a fee in payment for such information, the problem would be simplified. Buyers of machinery would understand the reason for a refusal. The purpose is not to make the charge an extortionate one. One suggestion is a dollar an item, which, it is said, would not cover the actual cost. The fee would be a deterrent with the appraisers. They would be more likely to depend upon their own judgment and upon records which might be maintained in their offices. Doubtless, also, they would use the books of their customers more freely in getting at the facts.

Whatever may result from the joint meeting, the decision of the two organizations to meet together and discuss the issues between them cannot but result in a better understanding on both sides.

### Safeguarding the Bankruptcy Act

Periodically a bill is introduced in Congress providing for the repeal of the national bankruptcy act. Such a measure is now pending, and called forth a protest by the American Bar Association at its recent annual meeting. Probably the law is in little danger—its workings have been eminently satisfactory from the beginning and various amendments have added to its efficiency. Nevertheless, it is well to call attention from time to time to the benefits which have come to business since laws governing failures were organized into a federal statute.

The experience of many of the younger generation engaged in manufacturing industries does not go back to the chaotic conditions which prevailed when each State was a law unto itself in the handling of the affairs of bankrupts. In those days insolvency proceedings—receiverships, trusteeships, assignments—were often binding only in the individual commonwealth. The findings of a New York court, for example, as to an insolvent estate was final only in regard to property within that State. Similar proceedings might be necessary in other States, before a tangle was unsnarled. A complete relief from the obligations of a debtor could sometimes be prevented by unscrupulous practice. A creditor might have the power to squeeze more than his share from an estate. The result was a marked influence on the extending of credits, even to the point of giving preference to residents of some States as compared with those of others. The federal

bankruptcy act has put all creditors on an equal basis. It is a machine which automatically and equitably adjusts the affairs of an honest bankrupt. His obligations are wiped out once and for all, so that he is given a chance to start afresh as a factor in the commercial or industrial community.

## Economic Changes and Better Business

### Increased Power and Auxiliary Requirements in Various Industries

Early reports on the prospects for fall business made to a number of large machinery builders in the Middle West from their sales offices and agencies in all parts of the United States as well as Canada and Mexico have been of an encouraging nature. The most marked feature of the situation is the provision being made throughout the country for increased power. Manufacturers of steam engines and condensers, gas engines, steam turbines and water turbines are all busy figuring on future requirements, with a fair percentage of active negotiations; and those supplying boilers, stokers, heaters, feed pumps, gas producers, governors, electric generators, etc., appear to be benefiting in proportion. This activity is contrary to anticipations. It was the general belief in midsummer that most lines of industry were "over-powered," as compared with the rate of production that has been called for; it was thought that, even where improvements or greater capacity seemed to be required, mill, factory or mine owners would patch up existing plants rather than buy much new equipment. The lesson of the lean years has obviously been, however, that it is true economy to keep in advance of power requirements, rather than to lag behind them, and that it costs less to maintain power plants in a high state of efficiency than to save by curtailing investment.

Simultaneously there has arisen the need for the more complete electrification of various industries where this can be brought about to advantage. In spite of all that has been accomplished in substituting motor drive for shafting and belting it would seem as though this progress does little more than keep pace with the total increase of general productive capacity, leaving the field for future work in this line practically as extensive as in the beginning. Opportunities for the introduction of electric control and the automatic regulation of operating machinery are also greater than ever before.

#### Handling Equipment

As in the case of power equipment, the conviction is becoming deeply rooted that money expended in better facilities for handling material, whether by piece or in bulk, will earn dividends rather than dissipate them; also, that it is more profitable to get rid of worthless components of raw material at its place of origin, as far as possible, than to pay freight and handling costs on the intermingled refuse. Hence coal and ore crushing, screening and washing plants and separators for material of many different kinds are sharing in the attention given to elevators, conveyors, cranes, magnets, steam shovels, suction dredges, etc. Even gravel washing has become an important industry, and numerous additional plants for this purpose—nearly all motor driven—will be erected within the year.

In connection with the above has come the recognition, so long delayed, that water and other fluids used in large quantities for industrial purposes represent merely so much bulk material to be handled. Hence, instead of contenting themselves with a "hodge-podge" of pumping units unrelated to one another and of unknown efficiency, users are installing well planned water-handling systems. This frequently results in one central pumping plant of high economy, serving many different purposes, where not long ago the operating costs, depreciation, etc., from scattered units ran into absolutely unwarranted figures. The possibilities of this gain in economy, taking all of its varied applications, are only just beginning to be realized, but many more managers are figuring on them than even a year ago.

#### Air and Refrigerator Appliances

Air under pressure, whether at 2 lb. or 150 lb., has also come to be regarded not as an elusive, intangible quantity, but as a commercial commodity, the handling of which requires judgment. This is a subject to which a great deal of attention is being devoted at the present time, attention that has lately been reflected in the purchase or planning of equipment. Similarly, apparatus that is pneumatically operated finds increasing application, and is bought more than formerly on the basis of demonstrated efficiency. The same may be said of apparatus producing or utilizing hydraulic pressure.

Refrigeration, although confined until recently to the preservation of animal and vegetable matter, has suddenly become an advanced science, and the beneficial effects of using air freed from moisture by this means are being studied out in their bearing upon numerous industrial processes, of which drying the blast for the iron smelting furnace was one of the earliest to be tried. Plants for ice-making have, however, been extensively built this year, especially for operation as a day load for electric lighting stations; and numerous orders for the coming season are already being placed. This line is, in fact, one of the most active in the entire list, and it helps to relieve the condition in others.

The use of electric heat in the industries, including metal working, is also looming up as one of the most important facts now before the manufacturers of this country. Its applications to steel refining furnaces, to welding, cutting, softening armor plate, etc., which constitute some of the best known of present processes, are only a few of many for which equipment will be developed on a large scale within the next year or two. The advantages of a localized, closely regulated heat and the lowering in cost which improved methods have brought about will force growing recognition of this subject.

In the various auxiliary lines mentioned above prospects are brighter at the present time than for the purchase of operating machinery peculiar to each branch of the industry, as in ore reduction plants, iron and steel mills, cement-making plants, textile mills or factories for the production of numerous daily necessities. The field of each of these has its limits, while power, pumping and conveying apparatus finds its application everywhere; but the demand for these auxiliaries is very evenly distributed through the country; and this always means that within a short time there will be improvement in the related lines, the machinery for which is usually standard and can be secured and installed in considerably less time, as required.

#### Metal Working Tools

While the manufacturers above referred to build machinery for almost every conceivable line of industry none of them produces machine tools, and their reports concerning the probable requirements of metalworking plants did not include these tools. So far as their own requirements are concerned, it does not seem probable that these will be very heavy during the fall. Independent inquiries among representatives of machine tool agencies develop a hopeful attitude on their part, but in some instances the optimism seems rather forced, being based upon the feeling that after the summer dullness business "must pick up." Several of those interviewed had, however, a good run of inquiries in hand and were following them up sharply. Actual orders have had their origin of late in widely separated parts of the country, with buying mainly of a miscellaneous character, some being from quite unexpected sources. Repair plants auxiliary to large industrial enterprises are taking an occasional lot of tools.

Foreign trade has been cultivated to a greater extent this year than in other recent seasons, and the results are showing up well. There is a disposition now among leading houses to make this a regular feature of their business, catering to it when times are good as well as when they are dull; but how long that feeling will last remains to be seen.

Taken altogether, the situation is favorable to gradually bettering conditions during the next few months. There is no lack of money for the purchase of new machinery as needed, and all that most prospective users require is to be convinced that the time has come to prepare for an increase in their own business. This now seems in a fair way to be brought about.

C. A. T.



### Rate Discrimination Alleged on Eastern Iron Ores

B. Nicoll & Co., 165 Broadway, New York, have filed a petition with the Interstate Commerce Commission at Washington, complaining of the rates on iron ore made by the Delaware, Lackawanna & Western, the Lehigh Valley, Philadelphia & Reading, Central Railroad of New Jersey, New York Central, Erie and other lines. The iron ore from Buffalo to Lehigh Valley and other Eastern points is \$1.45 per gross ton. The petitioner admits that this rate is reasonable but avers that the rates fixed by the various railroads named, on iron ore shipments from mines whose output B. Nicoll & Co. sell, to consuming points in New Jersey and Eastern Pennsylvania are unjust and discriminating in that they represent a much higher charge per ton per mile. Comparison is made in the petition between the rate on Lake Superior ores from Buffalo and the rate on New Jersey and New York ores to Eastern points to which lake ores are shipped. Comparison is made also between the rate from Fort Montgomery, N. Y., near which is located the iron mine of the Hudson Iron Company, whose product is sold by B. Nicoll & Co., and the rate on Port Henry ore to New Jersey and Eastern Pennsylvania points, which is \$1.85. It is shown that while the rates on Lake Superior and Port Henry ores to Eastern furnace districts average about 1-3 cent per ton per mile the rates from Ringwood, N. J., and from Fort Montgomery to the same furnace districts average about 1 cent per ton per mile. B. Nicoll & Co. ask for a refund of \$38,000, which they claim is excess freight paid in the past three years, and for the establishment of reasonable and non-discriminating rates on the ores from the Eastern mines they represent.

An issue of excessive freight rates is also made in the case of the Wharton Steel Company, Wharton, N. J., against the Central Railroad of New Jersey and the Pennsylvania Lines, which has been pending for some time and on which a decision will soon be handed down. The Wharton Steel Company's allegation is that on June 24, 1909, a joint through rate of \$1.05 per gross ton was fixed on pig iron from Wharton, N. J., to Harrisburg, Pa.; and that a tariff filed on August 15, 1910, made the rate \$1.15 per ton. The company asks that the \$1.05 rate be restored and maintained.

### The Philadelphia Foundry Foremen's Outing

The Associated Foundry Foremen of Philadelphia and Vicinity held their first annual outing September 16, at Central Park, Philadelphia. About 500 persons identified with the foundry trade attended. An elaborate programme of outdoor sports was carried out during the afternoon, for which numerous prizes were presented to the winners.

At an appropriate opportunity Clarence R. Brown, president of the association, introduced Thomas Devlin, president of the Philadelphia Foundrymen's Association, who said, in part, that he believed he had been selected to address the assembled foundry foremen because he was one of the oldest local foundrymen, having been in the business for 57 years. Up to a few years ago, he said, the foundry trade was not beset by the many difficulties now being encountered. Tariff agitation, financial policies, etc., had some influence from time to time, but the multitude of hindrances which the trade has met was not so pronounced. The interference with business today, he believed, was largely due to the disturbing influences of investigating commissions, composed to a great degree of men lacking practical knowledge in the work in which they are engaged.

Dancing followed in the evening. Music was rendered during the afternoon and evening by the Municipal Band. The general committee in charge of arrangements comprised Clarence R. Brown, John Alexander, C. J. Krayner, Charles Muir, James Whitehead, George Moore, C. Gorman, H. Bing, H. Freiler and J. Schram. The Athletic Committee was composed of John Alexander, J. Fasey, T. J. Connelly, Thomas Smith, M. S. Hare, R. R. Rentlinger, H. Taylor, H. A. White, F. Hack, A. W. Carr and W. Elkins. James Whitehead and Charles Muir had charge of the music and dancing.

**The Thomas Iron Company's Meeting.**—The stockholders of the Thomas Iron Company held their annual meeting September 12 at Hokendauqua, Pa. The reports

for the year submitted by the officers were quite satisfactory to the stockholders. The dividends paid were earned. The occasion brought out a large attendance. The old board of directors was re-elected, consisting of B. F. Fackenthal, Jr., W. P. Hardenbergh, Edwin Thomas, F. R. Drake, A. D. Chidsey, J. S. Krause and William H. Hulick. The board reelected the old officers, consisting of B. F. Fackenthal, Jr., president; William H. Hulick, vice-president, and James W. Weaver secretary and treasurer. As to the immediate condition of business, the president reported that practically all consumers having contracts for pig iron are pressing for prompt shipments. A noteworthy feature is that buyers will use their utmost endeavors to get a price under that asked, probably consuming much time in such negotiations, and immediately after giving the order will urge shipments as speedily as possible, indicating that stocks at foundries are very low.

The Baldwin Locomotive Works, Philadelphia, states that the report that a steel plant is to be erected at its works at Eddystone, Pa., is untrue. The company is putting in foundations there for a 500 ft. addition to its erecting shop, but does not contemplate the immediate building of the superstructure. It is taking the precaution of having the foundations completed so that should the demand for the heavier type of locomotives, which are too large to handle at its Philadelphia plant, develop at any time, it could be in position, on short notice, to take care of the work. The Baldwin Works has enough orders on hand to enable it to operate at its present rate for the next 60 or 90 days, but the demand is extremely light, being quieter, in fact, than at any time since 1907.

The directors of the American Hardware Corporation at a meeting at New Britain, Conn., September 18, voted to change it from a holding company to an operating company. Recent interpretations of the Sherman law, a desire to economize in management and to extend the business in foreign countries are the reasons given for the action. Charles E. Wetmore, who has been secretary, was made treasurer and Andrew J. Sloper, formerly treasurer, becomes secretary. The corporation has a capital of \$10,000,000 and the five controlled companies \$2,600,000.

The Linde Air Products Company, Buffalo, New York, reports an apparently unlimited demand for its oxy-acetylene welding and cutting apparatus and for compressed oxygen. Its business has not been affected appreciably by the depression of the past months, and the present year is expected to establish a record. The growth of the company's business has been so rapid that it has increased its capital stock to \$1,000,000 and now has four extensive plants in operation at various points, while the construction of others in the early future is under contemplation.

Commerce of the United States with foreign countries was prosperous in August, which closed with a balance of trade for the month of more than \$18,000,000 in our favor. With exports of \$144,241,515, August this year made a new record for the month, surpassing August exports in all previous years and August of a year ago by almost \$10,000,000, according to statistics of the Department of Commerce and Labor.

The Book Department of the David Williams Company, of which Edward P. von Gogh is manager, has arranged to have a representative stock of books on display at 50 Wilsey street, Newark, N. J. It is in charge of C. Donsaft, who has been specially trained to assist an inquirer in selecting books he may require on building, estimating, house planning, carpentry, drawing, plumbing, heating, sheet metal work, hardware, and iron and steel.

The Williams Tool Company, Erie, Pa., is erecting a new shop, 45 x 175 ft., as an addition to its present plant. This is made necessary by a steady increase in business which in the past year has been the largest in the company's history. Its products are pipe-threading and bolt-cutting machinery and transverse-current water heaters.

The Metal Manufacturers' Association, Philadelphia, Pa., held its regular quarterly meeting at the Bellevue-Stratford Hotel on the evening of September 13. About 200 were in attendance. F. W. Taylor was the speaker of the evening, making an address on "Scientific Management."

# The Iron and Metal Markets

## A Comparison of Prices

### Advances Over the Previous Week in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Sept. 20, 1911.	Sept. 13, 1911.	Aug. 16, 1911.	Sept. 21, 1910.
<b>PIG IRON, Per Gross Ton:</b>				
Foundry No. 2 standard, Philadelphia	\$15.00	\$15.00	\$15.00	\$16.00
Foundry No. 2, Valley furnace	13.50	13.50	13.50	13.75
Foundry No. 2 Southern, Cincinnati	13.25	13.25	13.50	14.25
Foundry No. 2, Birmingham, Ala.	10.00	10.00	10.25	11.00
Foundry No. 2, at furnace, Chicago	14.50	14.50	14.50	16.25
Basic, delivered, eastern Pa.	14.75	14.75	14.75	15.00
Basic, Valley furnace	12.60	13.00	13.00	13.50
Bessemer, Pittsburgh	15.90	15.90	15.90	15.90
Gray forge, Pittsburgh	13.90	13.90	13.90	14.25
Lake Superior charcoal, Chicago	16.50	16.50	16.50	18.25

### COKE, CONNELLSVILLE,

Per Net Ton, at Oven:				
Furnace coke, prompt shipment	1.50	1.50	1.50	1.60
Furnace coke, future delivery	1.60	1.60	1.65	1.75
Foundry coke, prompt shipment	1.85	1.85	1.85	2.10
Foundry coke, future delivery	2.10	2.10	2.10	2.25

<b>BILLETS, &amp;c., Per Gross Ton:</b>				
Bessemer billets, Pittsburgh	21.00	21.00	21.00	24.50
Forging billets, Pittsburgh	26.00	26.00	26.00	29.00
Open hearth billets, Philadelphia	22.40	23.40	23.40	26.50
Wire rods, Pittsburgh	27.00	27.00	27.00	28.00

### OLD MATERIALS, Per Gross Ton:

Iron rails, Chicago	14.50	14.50	14.00	16.00
Iron rails, Philadelphia	17.00	17.00	17.50	18.00
Car wheels, Chicago	12.75	12.75	12.75	14.00
Car wheels, Philadelphia	12.50	12.75	13.00	13.75
Heavy steel scrap, Pittsburgh	12.75	12.75	13.25	14.50
Heavy steel scrap, Chicago	10.50	10.50	10.75	12.25
Heavy steel scrap, Philadelphia	12.50	13.00	13.50	14.00

### FINISHED IRON AND STEEL,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Bessemer rails, heavy, at mill	1.25	1.25	1.25	1.25
Refined iron bars, Philadelphia	1.22½	1.27½	1.27½	1.40
Common iron bars, Pittsburgh	1.25	1.25	1.25	1.45
Common iron bars, Chicago	1.22½	1.22½	1.20	1.37½
Steel bars, Pittsburgh	1.20	1.20	1.20	1.40
Steel bars, tidewater, New York	1.36	1.36	1.36	1.56
Tank plates, Pittsburgh	1.30	1.30	1.35	1.40
Tank plates, tidewater, New York	1.46	1.46	1.51	1.56
Beams, Pittsburgh	1.35	1.35	1.35	1.40
Beams, tidewater, New York	1.51	1.51	1.51	1.56
Angles, Pittsburgh	1.35	1.35	1.35	1.40
Angles, tidewater, New York	1.51	1.51	1.51	1.56
Skelp, grooved steel, Pittsburgh	1.20	1.20	1.20	1.40
Skelp, sheared steel, Pittsburgh	1.30	1.30	1.30	1.50

### SHEETS, NAILS AND WIRE,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	1.90	1.90	2.00	2.15
Wire nails, Pittsburgh	1.65	1.65	1.70	1.70
Cut nails, Pittsburgh	1.55	1.60	1.60	1.65
Barb wire, galv., Pittsburgh	1.95	1.95	2.00	2.00

### METALS,

Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	12.60	12.75	12.75	12.75
Electrolytic copper, New York	12.37½	12.37½	12.62½	12.50
Spelter, St. Louis	5.90	5.90	5.95	5.45
Spelter, New York	6.05	6.05	6.15	5.60
Lead, St. Louis	4.35	4.40	4.45	4.30
Lead, New York	4.50	4.50	4.50	4.40
Tin, New York	38.87½	39.75	44.00	34.55
Antimony, Hallett, New York	7.75	7.75	7.75	7.87½
Tin plate, 100-lb. box, New York	\$3.84	\$3.84	\$3.94	\$3.84

\* The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

† These prices are for largest lots to jobbers.

## Prices of Finished Iron and Steel f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Indianapolis, 17c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Pacific coast, 80c. on plates, structural shapes and sheets No. 11 and heavier; 85c. on sheets Nos. 12 to 16; 95c. on sheets No. 16 and lighter; 65c. on wrought boiler tubes.

**Plates.**—Tank plates, ¼ in. thick, 6¼ in. up to 100 in. wide, 1.30c. to 1.35c., base, net cash, 30 days. Following are stipulations prescribed by manufacturers, with extras:

Rectangular plates, tank steel or conforming to manufacturers' standard specifications for structural steel dated February 6, 1903, or equivalent, ¼ in. thick and over on thinnest edge, 100 in. wide and under, down to but not including 6 in. wide, are base.

Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, are considered ¼-in. plates. Plates over 72 in. wide must be ordered ¼ in. thick on edge, or not less than 11 lb. per square foot, to take base price. Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. take the price of 3-16-in.

Allowable overweight, whether plates are ordered to gauge or weight, to be governed by the standard specifications of the Association of American Steel Manufacturers.

	Extras.	Cents per lb.
Gauges under ¼ in. to and including 3-16 in. on thin-nest edge		.10
Gauges under 3-16 in. to and including No. 8		.15
Gauges under No. 8 to and including No. 9		.25
Gauges under No. 9 to and including No. 10		.30
Gauges under No. 10 to and including No. 12		.40
Sketches (including all straight taper plates) 3 ft. and over in length		.10
Complete circles, 3 ft. in diameter and over		.20
Boiler and flange steel		.10
"A. B. M. A." and ordinary firebox steel		.20
Still bottom steel		.30
Marine steel		.40
Locomotive firebox steel		.50
Widths over 100 in. up to 110 in., inclusive		.05
Widths over 110 in. up to 115 in., inclusive		.10
Widths over 115 in. up to 120 in., inclusive		.15
Widths over 120 in. up to 125 in., inclusive		.25
Widths over 125 in. up to 130 in., inclusive		.50
Widths over 130 in.		1.00
Cutting to lengths or diameters under 3 ft. to 2 ft., inclusive		.25
Cutting to lengths or diameters under 2 ft. to 1 ft., inclusive		.50
Cutting to lengths or diameters under 1 ft.		1.55
No charge for cutting rectangular plates to lengths 3 ft. and over.		

**Structural Material.**—I-beams, channels and angles, 3 to 15 in., inclusive, 1.35c., net. Other shapes and sizes are quoted as follows:

	Cents per lb.
I-beams over 15 in.	1.45 to 1.50
H-beams over 18 in.	1.50 to 1.55
Angles, 3 to 6 in., inclusive, ¼ in. and up	1.35 to 1.40
Angles over 6 in.	1.45 to 1.50
Angles, 3 in. on one or both legs, less than ¼ in. thick, plus full extras as per steel bar card Sept. 1, 1909	1.40 to 1.45
Tees, 3 in. and up	1.40 to 1.45
Zees, 3 in. and up	1.35 to 1.40
Angles, channels and tees, under 3 in., plus full extras as per steel bar card Sept. 1, 1909	1.40 to 1.45
Deck beams and bulb angles	1.65 to 1.70
Hand rail tees	2.45
Checkered and corrugated plates	2.45

**Sheets.**—Makers' prices for mill shipments on sheets of U. S. standard gauge, in carload and larger lots, on which jobbers charge the usual discounts for small lots from store, are as follows:

	Blue Annealed Sheets.	Cents per lb.
Nos. 3 to 8		1.30 to 1.35
Nos. 9 and 10		1.40 to 1.45
Nos. 11 and 12		1.45 to 1.50
Nos. 13 and 14		1.50 to 1.55
Nos. 15 and 16		1.60 to 1.65

	Box Annealed Sheets, Cold Rolled.	One Pass.	Three Pass.
Nos. 10 to 12		1.55 to 1.60	
Nos. 13 and 14		1.60 to 1.65	
Nos. 15 and 16		1.65 to 1.70	1.75 to 1.80
Nos. 17 to 21		1.70 to 1.75	1.80 to 1.85
Nos. 22, 23 and 24		1.75 to 1.80	1.85 to 1.90
Nos. 25 and 26		1.80 to 1.85	1.90 to 1.95
No. 27		1.85 to 1.90	1.95 to 2.00
No. 28		1.90 to 1.95	2.00 to 2.05
No. 29		1.95 to 2.00	2.05 to 2.10
No. 30		2.05 to 2.10	2.15 to 2.20

	Galvanized Sheets, of Black Sheet Gauge.	
Nos. 10 and 11		1.90 to 1.95
Nos. 12, 13 and 14		2.00 to 2.05
Nos. 15, 16 and 17		2.15 to 2.20
Nos. 18 to 22		2.30 to 2.35
Nos. 23 and 24		2.40 to 2.45
Nos. 25 and 26		2.60 to 2.65
No. 27		2.75 to 2.80
No. 28		2.90 to 2.95
No. 29		3.00 to 3.05
No. 30		3.20 to 3.25

All above rates on sheets are f.o.b. Pittsburgh, terms 30 days net, or 2 per cent. cash discount in 10 days from date of invoice, as also are the following base prices per square for painted and galvanized roofing sheets, with 2½-in. corrugations:

Gauge.	Painted.	Galvanized.	Gauge.	Painted.	Galvanized.
29		\$2.40	23	\$2.40	\$3.50
28	\$1.40	2.25	22	2.60	3.70
27	1.55	2.60	21	2.80	4.05
26	1.65	2.65	20	3.05	4.35
25	1.85	3.05	18	4.05	5.70
24	2.10	3.15	16	4.90	6.50

**Wire Rods and Wire.**—Bessemer, open hearth and chain rods, \$27. Fence wire, Nos. 0 to 9 per 100 lb., terms 60 days, or 2 per cent. discount in 10 days, car-



## THE IRON AND METAL MARKETS

load lots, to jobbers, annealed, \$1.50; galvanized, \$1.80. Carload lots, to retailers, annealed, \$1.55; galvanized, \$1.80. Galvanized barb wire to jobbers, \$1.95; painted, \$1.65. Wire nails, to jobbers, \$1.65.

The following table gives the price to retail merchants on wire in less than carloads, including the extras on Nos. 10 to 16, which are added to the base price:

		Fence Wire, Per 100 lb.					
Nos.		0 to 9	10	11	12 & 12½	13	14
Annealed	...	\$1.65	\$1.70	\$1.75	\$1.80	\$1.90	\$2.00
Galvanized	...	1.95	2.00	2.05	2.10	2.20	2.30

Market and Stone Wire in Bundles, Discount from Standing List.

Bright and Annealed:		
9 and coarser	.....	80
10 to 18	.....	80 and 10
19 to 26	.....	80 and 10 and 2½
27 to 36	.....	80 and 5
Galvanized:		
9 and coarser	.....	75 and 10
10 to 16	.....	75 and 10
17 to 26	.....	72½ and 10
27 to 36	.....	72½
Coppered or Liquor Finished:		
9 and coarser	.....	75 and 10
10 to 26	.....	75 and 10
27 to 36	.....	70 and 10 and 5
Tinned:		
6 to 18	.....	75 and 10 and 10

**Wrought Pipe.**—The following are the jobbers' carload discounts on the Pittsburgh basing card on wrought pipe, in effect from October 1, 1910:

	Butt Weld.			
	Steel	Galv.	Black.	Galv.
1 to 1½ in.	75	63	71	59
1½ to 2 in.	79	69	75	65
2 to 3 in.	80	70	76	66
Lap Weld.				
2 in.	76	66	72	62
2½ to 4 in.	78	67	74	64
4½ to 6 in.	77	67	73	63
7 to 12 in.	75	59	71	55
13 to 15 in.	51½	..	..	..
Butt Weld, extra strong, plain ends, card weight.				
½, ¾, 1 in.	69	59	65	55
1½ in.	74	68	70	64
¾ to 1½ in.	78	72	74	68
2 to 3 in.	79	73	75	69
Lap Weld, extra strong, plain ends, card weight.				
2 in.	75	69	71	65
2½ to 4 in.	77	71	73	67
4½ to 6 in.	76	70	72	66
7 to 8 in.	69	59	65	55
9 to 12 in.	64	54	60	50
Butt Weld, double extra strong, plain ends, card weight.				
½ in.	64	58	60	54
¾ to 1½ in.	67	61	63	57
2 to 3 in.	69	63	65	59
Lap Weld, double extra strong, plain ends, card weight.				
2 in.	65	59	61	55
2½ to 4 in.	67	61	63	57
4½ to 6 in.	66	60	62	56
7 to 8 in.	59	49	62	56

Plugged and Reamed.		
1 to 1½, 2 to 3 in. Butt Weld	} will be sold at two (2) points lower basing (higher price) than merchants' or card weight pipe. Butt or lap weld, as specified.	
2, 2½ to 4 in. Lap Weld		

The above discounts are for "card weight," subject to the usual variations of 5 per cent. Prices for less than carloads are three (3) points lower basing (higher price) than the above discounts.

**Boiler Tubes.**—Discounts on lap welded steel boiler tubes to jobbers in carloads are as follows:

	Steel.
1½ to 2½ in.	65
2½ in.	67½
2½ to 3½ in.	70
3½ to 4½ in.	72½
5 to 6 in.	65
7 to 13 in.	62½

Less than carloads to destination east of the Mississippi River will be sold at delivered discounts for carload lowered by two points for lengths 22 ft. and under; longer lengths f.o.b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

### Pittsburgh

PITTSBURGH, PA., September 20, 1911.

Several of the larger steel interests report that in the last few days specifications against contracts for finished material have been coming in a little better, but probably because of the lower prices being made on nearly all kinds of finished iron and steel. The market on steel bars seems especially weak, and while 1.20c. is now the open market 1.15c. has been done on desirable orders. Structural material is also slightly weaker, and 1.30c. on beams and channels up to 15-in. is being done. The smaller open-hearth steel plants are going after

new business very aggressively and are offering open-hearth billets at about \$19 and open-hearth sheet bars at about \$20, f.o.b. Pittsburgh, for prompt specifications. The leading mills that make Bessemer and open hearth billets and sheet bars, and which have their customers covered by contracts, state they are not making these prices on the small amount of new business that is being offered in billets and sheet bars and have not been asked to do so by their customers. While the near future in the iron trade is not promising there is still hope that the demand will pick up in October and that business will be better in the last three months of the year than in the current quarter. It is pointed out that prices on pig iron, steel billets and on nearly all lines of finished iron and steel are low. One thing is practically certain to happen, and it is that, unless conditions soon improve, labor will be asked to take a reduction.

**Pig Iron.**—The most important sale reported is one of 1000 tons of basic iron made by a local dealer for prompt delivery at \$12.60, Valley furnace, or \$13.50, Pittsburgh. There is no inquiry for Bessemer, and while prices are nominally \$15, Valley furnace, it could readily be bought at \$14.60 to \$14.75 from dealers. Several sales of No. 2 foundry iron have been made for remainder of the year delivery, aggregating probably 3000 tons, at about \$13.50 at Valley furnace. Prices on malleable Bessemer iron are weaker and it has been offered at \$13 at furnace. We quote as follows: Bessemer iron, nominally, \$15; basic, \$12.60; No. 2 foundry, \$13.50; gray forge, \$13, and malleable Bessemer, \$13, all at Valley furnace, the freight rate to Pittsburgh district being 90c. a ton.

**Steel.**—Mills having contracts with consumers for billets and sheet and tin bars report that specifications so far this month have been coming in at a fair rate, but not so freely as in August. Regular prices on Bessemer and open hearth billets are not being strictly held, a number of the smaller open hearth plants offering billets and sheet and tin bars at \$20, delivered, Pittsburgh. It is claimed that the quality of this open hearth steel is not up to the usual standard, but nevertheless these makers are taking practically all the new business that is being offered. Regular prices are as follows: Bessemer and open hearth billets, 4 x 4 in. and up to but not including 10 x 10 in., \$21, base; sheet and tin bars in 30-ft. lengths, \$22; 1½-in. billets, \$22; forging billets, \$26, base, usual extras for sizes and carbons, all prices being f.o.b. Pittsburgh or Youngstown district, with freight to destination added.

**Ferromanganese.**—Prices have advanced, several of the leading importers now asking as high as \$38.50, Baltimore, for foreign 80 per cent. for delivery through the first half of next year. For the remainder of this year the quotation is about \$37, Baltimore, the freight rate to Pittsburgh being \$1.95 a ton.

**Ferrosilicon.**—As yet nothing has been done with the inquiry of a local interest for 300 tons, owing to the high prices asked. We quote 50 per cent. at \$57 to \$58, and blast furnace as follows: 10 per cent., \$23; 11 per cent., \$24, and 12 per cent., \$25, f.o.b. cars, Ashland, Ky., and Jackson, Ohio, furnaces.

**Muck Bar.**—In the absence of sales we quote best grades of muck bar, made from all pig iron, at nominally \$28.50 to \$29, Pittsburgh.

**Skelp.**—A sale of about 1000 tons of grooved steel skelp for this and next month delivery is reported on the basis of about 1.20c., delivered buyer's mill. All the mills are in need of orders. We quote: Grooved steel skelp, 1.20c.; sheared steel skelp, 1.30c.; grooved iron skelp, 1.45c. to 1.55c., and sheared iron skelp, 1.65c. to 1.70c., all for delivery at consumers' mills in the Pittsburgh district.

**Wire Rods.**—A sale of 300 tons of Bessemer rods, equal deliveries in October, November and December, is reported at slightly under \$27, Pittsburgh. Consumers are not specifying freely against contracts. We continue to quote Bessemer, open hearth and chain rods at \$27, but reports are that \$26 to \$26.50 has been done in some recent sales.

**Steel Rails.**—The Carnegie Steel Company did not take any orders of moment for standard sections in the past week, total sales amounting to less than 4000 tons. The order o. the Pittsburgh & Lake Erie Railroad, referred to extensively in the daily press in the past week as 7500 tons, and pointed to as indicating that the railroads were buying liberally of rails, was taken by the Carnegie Steel Company about a month ago and was referred to in this report at the time. Light rails are fairly active, the Carnegie Steel Company having taken new orders and received specifications in the past week for nearly 3000 tons. Prices on

## THE IRON AND METAL MARKETS

light rails are as follows: 12-lb., 1.25c.; 16, 20 and 25-lb., 1.21c. to 1.25c.; 30 and 35-lb., 1.20c., and 40 and 45-lb., 1.16c. These prices are f.o.b. at mill, plus freight, and are the minimum of the market in carload lots, small lots being sold at a little higher price. Standard sections are held at 1.25c. per lb. for Bessemer.

**Plates.**—New orders for steel cars have been light for the past two or three weeks, but some fair-sized inquiries are in the market. The Pennsylvania Railroad is inquiring for 1150 freight cars for its own lines and 75 to 100 suburban service cars for the Long Island Railroad; Buffalo, Rochester & Pittsburgh for 1086 steel underframes for wooden cars; the Baltimore & Ohio for 10 passenger and 10 baggage cars, and the Western Maryland will shortly be in the market for upward of 5000 freight cars, 50 passenger coaches and about 50 locomotives, in contemplation of the opening of its Connellsville extension. Nothing has been done as yet on the inquiry of the Missouri Pacific for 4400 freight cars, but it is believed the road will buy them within a short time. A local mill has received a contract for about 700 tons of plates for delivery at Akron, Ohio. The general demand for plates is quiet, especially from the steel car companies, and all the leading mills are in need of orders. While we quote  $\frac{1}{4}$ -in. and heavier plates in the wide sizes at 1.30c., f.o.b. Pittsburgh, this price has been shaded, and on narrow sizes of plates 1.25c. is being named by some mills.

**Structural Material.**—It is understood the Jones & Laughlin Steel Company will furnish 3000 tons for the spillway gates and valves for the Panama Canal on which the McClintic-Marshall Construction Company was the lowest bidder and will also furnish 400 tons of steel for a high school at Schenectady, N. Y. Prices on structural steel are reported firm and we quote beams and channels up to 15 in. at 1.35c., Pittsburgh.

**Sheets.**—As far as new demand and specifications against contracts are concerned, the situation is fairly satisfactory to the sheet mills, but concessions in prices are still being made. On No. 28 gauge, box annealed, one-pass cold rolled black sheets the market has settled down to about 1.90c. in carload and larger lots to the large trade and to 2.90c. on the same gauge of galvanized sheets. The margin of profit to mills that have to buy their sheet bars in the open market is very small, and it is said that some find present prices on sheets are at cost or below. The American Sheet & Tin Plate Company continues to operate to about 70 per cent. of its hot sheet mill capacity, but reports specifications quite active, and expects to put on additional hot sheet mills in the near future. The leading independent mills are also operating to from 70 to 75 per cent. of capacity.

**Tin Plate.**—Specifications against contracts from can makers and packers have been coming in quite freely for several months, with the result that the mills shipped out more tin plate in August than in any one month for a long time, but shipments so far this month show a falling off and operations of the leading mills are at a slightly less rate of capacity. Prices on tin plate are fairly strong on the \$3.60 basis for new orders, while shipments are still being made on contracts taken some time ago at \$3.70 for coke plates per box of 100 lbs. We continue to quote 100-lb. cokes at \$3.60 to \$3.70 per base box f.o.b., Pittsburgh.

**Bars.**—With most consumers now covered by contracts, against which specifications are not coming in very freely, the bar market has quieted down to some extent and new orders being placed are light. The mills rolling steel bars are fairly well filled up for some time, and are operating on an average of about 75 per cent. of capacity. Makers of iron bars are trying to get slightly better prices, but in the face of a light demand, and also owing to the decline in prices of scrap, they have not been successful. We continue to quote steel bars at 1.20c. to 1.25c. and iron bars at 1.25c. to 1.30c., Pittsburgh.

**Merchant Steel.**—This trade is quiet, the new demand being confined to small lots to cover actual needs, while specifications against contracts are not coming in this month as freely as in August. Shipments this month will show a falling off as compared with last month. Regular prices, which are more or less shaded, are as follows: Iron finished tire,  $\frac{1}{4}$  x  $\frac{1}{2}$  in. and heavier, 1.40c., base; under these sizes, 1.55c.; planished tire, 1.60c.; channel tire, 1.80c., base; toe calk, 1.90c.; flat sleigh shoe, 1.55c.; concave or convex, 1.75c.; cutter shoes, tapered or bent, 2.25c.; spring steel, 2c.; machinery steel, smooth finished, 1.90c.

**Hoops and Bands.**—Two leading makers report that

specifications on hoops and bands so far this month have held up equally as well as in the same period in August, but the new demand for both hoops and bands is quiet, and only for small lots to cover actual needs. We quote steel hoops at 1.35c. to 1.40c. and bands at 1.20c. to 1.25c., extras on the latter as per the steel bar card.

**Rivets.**—There is a steady flow of small orders for structural and boiler rivets to meet current needs of consumers, but specifications against contracts are slow. We quote structural rivets at 1.70c. and boiler rivets at 1.80c., but these prices are shaded.

**Wire Products.**—Makers report that new orders for wire and wire nails so far this month have been fairly heavy and specifications against contracts are moderate. Buyers, however, are confining their purchases to actual needs. We quote wire nails at \$1.65; cut nails, \$1.55; galvanized barb wire, \$1.95; painted, \$1.65; annealed fence wire, \$1.45, and galvanized, \$1.75, all f.o.b. Pittsburgh, usual terms, full freight added to point of delivery.

**Spelter.**—The market has about held its own in the past week, but the new demand is reported quiet. We quote prime grades of Western spelter at 5.80c., East St. Louis, equal to 5.92 $\frac{1}{2}$ c., Pittsburgh. Prices are weak and buyers are placing orders only for spot shipment.

**Shafting.**—There is some betterment in specifications for shafting from the implement makers, but from the automobile trade they are very dull. New orders being placed are only for small lots to meet actual needs. Prices on shafting continue irregular, and while the official discount on carload and larger lots is 60 per cent. off list, actual prices on carload and larger orders range from 60 and 5 per cent. to 60 and 10 per cent. off list, the latter discount being named only to the very large trade.

**Railroad Spikes.**—Only small orders are being placed, but specifications from three or four of the leading railroads have been coming in a little better of late. We quote railroad spikes at \$1.45 to \$1.50 per 100 lb. base sizes, f.o.b. Pittsburgh.

**Merchant Pipe.**—A Western consumer has placed an order with a local mill for about 27 miles of 1 to 4-in. line pipe. The new demand for merchant pipe this month has shown a falling off as compared with the same time in August, persistent reports being current that a new card naming lower discounts on iron and steel pipe will be issued about October 1, but the leading mills refuse to state what their policy will be. Slight concessions are being made, but they are not any heavier than usually prevail in the pipe market and are being given only to the large trade and in most cases on line pipe. Prices on iron and steel pipe have been guaranteed by the mills to October 1, so that on that date the guarantee will either have to be extended or else a reduction in prices made. It can be said that jobbers favor very strongly maintaining the present card of discounts on both iron and steel pipe.

**Boiler Tubes.**—Specifications against contracts for locomotive tubes are coming in at a fairly satisfactory rate, but the new demand is only for small lots. The market on merchant tubes is neglected and discounts on merchant and locomotive tubes continue to be shaded, as they have been for some months.

**Coke.**—While there is at present enough labor to supply the demand it is claimed that if 2000 or 3000 more ovens were started there would be difficulty in finding men to operate them. A sale of 5000 to 6000 tons of standard furnace coke for October delivery was made last week by a local dealer at \$1.55 per net ton at oven. The output of coke in the Upper and Lower Connellsville regions last week was 329,750 tons, a decrease over the previous week of about 18,000 tons. We quote standard makes of furnace contracts for prompt shipment at \$1.50 to \$1.55 and on contracts for remainder of this year at \$1.65 to \$1.70 per net ton at oven. We quote 72-hr. foundry coke for prompt shipment at \$1.85 and up to \$2, and on contracts from \$2.10 and as high as \$2.40, the latter price being paid for some brands of coke that have a very high reputation in the trade.

**Iron and Steel Scrap.**—The Baltimore & Ohio Railroad scrap lists closed last week, and in a general way the prices realized were about 25c. a ton lower than on the previous lists. The consumption of heavy steel scrap is fairly large, partly due to the fact that the Republic Iron & Steel Company is buying from 10,000 to 12,000 tons per month in the open market for its open hearth steel plant. Some dealers are refusing to sell, holding their scrap for higher prices later on. Sales have been very light in the past week, mostly in carload



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lots, and usually of material already loaded on cars and that had to be moved. Prices are as follows per gross ton f.o.b. Pittsburgh, unless otherwise noted:

Heavy steel scrap, Siebenville, Follansbee, Sharon, Monessen and Pittsburgh delivery.....	\$12.75
No. 1 foundry cast.....	\$12.75 to 13.00
No. 2 foundry cast.....	12.25 to 13.00
Bundled sheet scrap, f.o.b. consumers' mill, Pittsburgh district.....	10.75 to 11.00
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.....	13.00 to 13.25
No. 1 railroad malleable stock.....	11.75 to 12.00
Grate bars.....	9.50 to 9.75
Low phosphorus melting stock.....	15.50 to 15.75
Iron car axles.....	22.00 to 22.50
Steel car axles.....	17.00 to 17.25
Locomotive axles.....	23.00
No. 1 busheling scrap.....	11.50 to 11.75
No. 2 busheling scrap.....	8.00 to 8.25
Old car wheels.....	12.50 to 12.75
Sheet bar crop ends.....	15.25 to 15.50
*Cast iron borings.....	9.00
*Machine shop turnings.....	9.10 to 9.25
Old iron rails.....	14.50 to 14.75
No. 1 wrought scrap.....	13.50
*Heavy steel axle turnings.....	9.75 to 10.00
Stove plate.....	9.50 to 9.75

\*These prices are f.o.b. cars at consumers' mills in the Pittsburgh district.

### Chicago

CHICAGO, ILL., September 20, 1911.—(By Telegraph.)

The market conditions in this territory indicate a growing acceptance of the existing status for the remainder of the year, and a general tendency to postpone aggressive action until the first of the year is beginning to make itself apparent. That the railroads continue to limit themselves in their expenditures to minor requirements is illustrated by a fairly active specifying for track fastenings as compared with practically no buying of rails during the past week, the principal sale having been 3000 tons of Bessemer rails taken by the South Chicago plant. An order for 1000 steel gondola cars was placed by the Monon system and the Frisco lines are reported as buying 2500 refrigerator cars. Structural steel continues to move in good tonnage, and fabricating shops in increasing number are reporting their capacity well filled. The greatest eagerness for structural tonnage seems now to be displayed by certain of the Eastern mills working with local fabricators. Concessions from regular prices for plates and sheets continue to rule, and despite rumors of an arbitrary stiffening of prices the volume of business fails to evidence any immediate prospects of improved conditions. The steel and iron bar market remains about as it has been. Interest in pig iron for the remainder of the year is light, while the local furnaces are bolstering their prices with acceptances of first quarter delivery business. Consumption of both iron and steel scrap locally is at a minimum and there is very little trading reported. Prices are slightly lower, and the basis upon which leading melters now out of the market will renew purchases is largely problematical. The scale of operation in the general foundry and manufacturing business seems to be upon a slightly higher percentage of activity.

**Pig Iron.**—The fairly active inquiry, largely for shipment in first quarter, that was prevalent in this market a fortnight ago is now almost entirely absent. A considerable quantity of local Northern iron was sold for first quarter delivery but Southern furnaces have been less active in booking forward shipment. The outlook for local furnaces has been such that a delay in selling for next year promised little in the way of higher prices, while the speculative opportunity permitted the obtaining of slight advances over current prices. A booking of this first quarter business has thus supported the otherwise lifeless situation. Asking prices for Southern pig iron show considerable variance, it being possible to obtain certain spot shipment iron as low as \$10, Birmingham, while from other furnaces \$10.50 is the best price obtainable for any delivery for the remainder of the year. A number of sales are also reported on the basis of \$10.25, Birmingham, for No. 2. It seems likely that a considerable tonnage taken by consumers for delivery in the last half of this year will be carried over on their yards into the first quarter. The inference generally conceded as correct is that the melt during the past several months has not been as large as was anticipated. Sales during the past week have included a number of lots of several hundred tons each to supply routine

requirements. We quote for Chicago delivery, except for local irons, which are f.o.b. furnace, the following prices on prompt shipments:

Lake Superior charcoal.....	\$16.50 to \$17.00
Northern coke foundry, No. 1.....	15.00 to 15.50
Northern coke foundry, No. 2.....	14.50 to 15.00
Northern coke foundry, No. 3.....	14.25 to 14.50
Northern Scotch, No. 1.....	16.00
Southern coke, No. 1 foundry and No. 1 soft.....	14.85 to 15.10
Southern coke, No. 2 foundry and No. 2 soft.....	14.35 to 14.60
Southern coke, No. 3.....	14.10 to 14.35
Southern coke, No. 4.....	13.85 to 14.10
Southern gray forge.....	13.60 to 13.85
Southern mottled.....	13.60 to 13.85
Malleable Bessemer.....	14.50 to 15.00
Standard Bessemer.....	17.40
Basic.....	15.50
Jackson Co. and Kentucky Silvery, 6 per cent.....	17.90
Jackson Co. and Kentucky Silvery, 8 per cent.....	18.90
Jackson Co. and Kentucky Silvery, 10 per cent.....	19.90

(By Mail.)

**Rails and Track Supplies.**—Rail contracts placing during the past week with the leading interest amounted to considerably less than 5000 tons, the principal item being an order for 3000 tons of Bessemer rails for an Iowa railroad. Orders for track fastenings are in much better volume. The Cincinnati, Indianapolis & Louisville Railroad Company, commonly known as the Monon, has placed an order for 1000 steel gondolas with the American Car & Foundry Company and the Frisco lines are reported to have placed their order for 2500 refrigerator cars. We quote standard railroad spikes at 1.65c. to 1.75c., base; track bolts with square nuts, 2.10c. to 2.20c., base, all in carload lots, Chicago; standard section Bessemer rails, 1.28c.; open hearth, 1.34c.; light rails, 40 to 45 lb., 1.16c. to 1.20½c.; 30 to 35 lb., 1.19½c. to 1.24c.; 16, 20 and 25 lb., 1.20½c. to 1.25c.; 12 lb., 1.25c. to 1.30½c.; angle bars, 1.50c. to 1.60c., Chicago.

**Structural Material.**—The principal letting of fabricated steel announced in the week was the contract for 3400 tons for the Kesner Building, Chicago, awarded to the Hansell-Elcock Company. Bids closed on Monday for 6000 tons for the new Chicago, Burlington & Quincy Railroad office building, work on which is to be rushed with all possible speed. Other contracts placed brought the total reported for the week up to about 7000 tons, which included a factory building for the Brunswick-Balke-Collender Company, Dubuque, Iowa; a warehouse of reinforced concrete construction for Sickles & Preston, Davenport, Iowa; an addition to the power house of the Indiana & Michigan Electric Company, South Bend, Ind., 497 tons, to the Rochester Bridge Company; a new plant for the Haskell-Barker Car Company, Michigan City, Ind., 326 tons, to the Lackawanna Bridge Company; 900 tons for a coal handling plant at Duluth, Minn., to the Minneapolis Steel & Machinery Company, and 1000 tons for storage sheds and conveyor business for the same plant to the Milwaukee Bridge Company. Prices for both plain material and fabricated work are somewhat firmer. We quote for mill shipment, Chicago delivery, 1.53c. and from store 1.75c.

**Plates.**—The material for the 1000 steel gondolas mentioned in a preceding paragraph will be furnished, it is expected, by the Illinois Steel Company, and will include a larger tonnage of plates than has been required for car building in a number of weeks. The general demand for universal plates seems to have assumed some prominence and the starting of the universal plate mill at Gary is contemplated. Prices continue subject to shading and the current tonnage available seems insufficient to make a firmer status possible. Our quotations continue to be nominally, for Chicago delivery, mill shipment, 1.53c. and from jobbers' stocks 1.75c.

**Sheets.**—The Indiana Harbor mill continues to operate all of its sheet mills, though the tonnage output incident thereto is maintained only with difficulty and in a more or less hand-to-mouth fashion. The presence of the new capacity at Gary is beginning to be felt in this territory, particularly with reference to blue annealed sheets in the heavier gauges. No improvement is noted in the situation regarding prices and concessions of from \$1 to \$2 per ton continue. We quote Chicago prices as follows: Carload lots, from mill: No. 28 black sheets, 2.18c.; No. 28 galvanized, 3.18c.; No. 10 blue annealed, 1.68c. Prices from store, Chicago, are: No. 10, 1.95c. to 2.05c.; No. 12, 2c. to 2.10c.; No. 28 black, 2.45c. to 2.55c.; No. 28 galvanized, 3.45c.

**Bars.**—The principal bar iron mills continue to adhere as strictly as possible to prices close to 1.25c. and

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a good proportion of the current business is reported as being placed at that figure. Material concessions are not entirely absent, however. The shading of the prices on steel bars is as extensive as it has been and the volume of new business remains much less than mill capacity. We quote as follows, f.o.b. Chicago: Soft steel bars, 1.38c. to 1.43c.; bar iron, 1.22½c. to 1.25c.; hard steel bars rolled from old rails, 1.20c. From store, soft steel bars, 1.70c. to 1.80c.; Chicago.

**Wire Products.**—Comparisons of the current trade in wire products with the bookings of a year ago are very favorable and an increase in 1911 fall business over 1910 seems quite likely. The demand for wire nails and barb wire indicates clearly, however, a restriction within the limits of actual requirements. Consumers are beginning to accept shipments on the customary spring dating basis and as the fall season advances the price situation is becoming more settled. Jobbers' carload prices, which are quoted to manufacturing buyers, are as follows: Plain wire, No. 9 and coarser, base, 1.68c.; wire nails, 1.88c.; painted barb wire, 1.88c.; galvanized, 2.18c.; polished staples, 1.88c.; galvanized, 2.18c., all Chicago.

**Cast Iron Pipe.**—The past week was without municipal lettings of importance, the tonnage at Muskegon, Mich., still remaining unplaced. At Omaha, Neb., 200 tons was bought and contracts for like amounts were awarded at Lacyne, Kan., and Montgomery City, Mo. The two latter were for 4-in. pipe, for which size the leading interest is promising no better than 60 days' delivery. We quote as follows, per net ton, Chicago: Water pipe, 4-in., \$26.50; 6 to 12-in., \$24.50; 16-in. and up, \$24, with \$1 extra for gas pipe.

**Old Material.**—At the present writing the local market is almost without outlet among the principal melters of this district. A disposition to reduce stocks on the yards of the mills has removed most of them from the list of buyers. As a result prices of almost all classes of scrap are off from 25c. to 50c. per ton. A sale of 1500 tons of heavy melting steel scrap was made in the week at \$10.75. A small quantity of No. 1 railroad wrought brought slightly less than \$11 and a carload of pipes and flues went at \$8. The leading melter of cast scrap is said to be out of the market and the price is off to \$10.75 maximum. A comparatively small amount of scrap is offered by the railroads this week, the lists including one of several hundred tons from the various shops of the Big Four Route, 400 tons from the Soo Line and a small quantity from the Chicago & Alton Railroad. We quote for delivery at buyer's works, Chicago and vicinity, all freight and transfer charges paid, per gross ton, as follows:

Old iron rails.....	\$14.50 to \$15.00
Old steel rails, rerolling.....	12.50 to 13.00
Old steel rails, less than 3 ft.....	11.50 to 12.00
Relaying rails, standard sections, subject to inspection.....	24.00
Old car wheels.....	12.75 to 13.00
Heavy melting steel scrap.....	10.50 to 11.00
Frogs, switches and guards, cut apart.....	10.50 to 11.00
Shoveling steel.....	10.25 to 10.75
Steel axle turnings.....	8.50 to 9.00

The following quotations are per net ton:

Iron angles and splice bars.....	\$12.50 to \$13.00
Iron arch bars and transoms.....	13.50 to 14.00
Steel angle bars.....	10.25 to 10.75
Iron car axles.....	18.00 to 18.50
Steel car axles.....	16.00 to 16.50
No. 1 railroad wrought.....	10.75 to 11.25
No. 2 railroad wrought.....	9.75 to 10.25
Steel knuckles and couplers.....	10.25 to 10.75
Steel springs.....	10.25 to 10.75
Locomotive tires, smooth.....	15.00 to 15.50
Machine shop turnings.....	6.25 to 6.75
Cast and mixed borings.....	6.00 to 6.50
No. 1 busheling.....	8.75 to 9.25
No. 2 busheling.....	6.75 to 7.25
No. 1 boilers, cut to sheets and rings.....	7.50 to 8.00
Boiler punchings.....	12.00 to 12.50
No. 1 cast scrap.....	10.50 to 11.00
Stove plate and light cast scrap.....	9.00 to 9.50
Railroad malleable.....	10.00 to 10.50
Agricultural malleable.....	9.25 to 9.75
Pipes and flues.....	8.00 to 8.50

### Philadelphia

PHILADELPHIA, PA., September 19, 1911.

General business in the iron and steel trade continues along rather narrow lines. Moderate purchases of foundry iron for fourth quarter delivery are being made at unchanged prices. In the finished material trade price irregularities restrict buying. Billets are \$1 a ton lower and iron bars are easier, but in other lines quotations are nominally unchanged. Railroad

buying is light. In old material prices are lower in nearly all grades. Coke remains rather quiet.

**Iron Ore.**—Nothing of importance has developed. Consumers are pretty well supplied for this year's requirements and negotiations for 1912 supplies have not yet been opened. Importations during the week ending September 16 included 12,600 tons from Newfoundland, 4500 tons from New Brunswick, 5634 tons from Spain and 5400 tons from Cuba.

**Pig Iron.**—The market continues comparatively strong, although the volume of business transacted is no doubt somewhat smaller. With consumers taking deliveries freely and the majority of the furnaces pretty well sold up for the near future, sellers are not particularly anxious for extended contracts at the present level of prices, and still refuse to quote on inquiries covering deliveries extending beyond the year end. Sales in the foundry grades have been confined, as a rule, to small lots, with occasional sales of 300 to 500 tons for prompt and fourth quarter shipments, for which standard Northern brands of No. 2 X foundry command from \$15 to \$15.25, and Virginia brands range from \$15 to \$15.50, delivered. A sale of 100 tons of No. 1 X Virginia foundry for fourth quarter delivery is reported at \$12.75 at furnace. While the class of recent buyers covers a pretty general range, there is a trifle more business being transacted with the stove foundries. The most pronounced inquiry recently comes from the cast iron pipe makers, who are again actively in the market. Practically all of the Delaware River pipe makers are making inquiries, some for definite quantities, but others have not stated exact amounts. One concern has been in the market for 5000 tons of No. 3 foundry, against which some purchases are reported to have been made. Another interest has an inquiry out for several thousand tons of analysis iron, while practically all would take on low grade iron if they could get it at a satisfactory price, but as Northern low grade iron has been comparatively scarce the makers are either not in a position to quote or will not make price concessions and little business of this character has been done. No transactions of importance in Southern iron have developed. After the recent heavy purchases of rolling mill forge iron, interest in this grade has again quieted down. No new inquiries of importance have come out. Steel making grades are inactive. A few sales of standard low phosphorus iron at both \$20 and \$20.50, delivered, have been made, but the demand for basic iron is practically at a standstill. The following range of prices is named for standard brands, delivered in buyers' yards in this vicinity, shipment ranging from prompt to the remainder of the year:

Eastern Pennsylvania No. 2 X foundry.....	\$15.00 to \$15.25
Eastern Pennsylvania No. 2 plain.....	14.75 to 15.00
Virginia foundry.....	15.00 to 15.50
Gray forge.....	14.50
Basic.....	14.75 to 15.00
Standard low phosphorus.....	20.00 to 20.50

**Ferroalloys.**—Prices of 80 per cent. ferromanganese have been moved upward, and practically every seller now quotes \$38.50, Baltimore, for either prompt or forward business. No business is being done, however, at the new price basis. While no transactions in 50 per cent. ferrosilicon are reported prices are said to be stronger at \$58 to \$59, delivered. Some little inquiry for 11 to 13 per cent. ferrosilicon is reported, with occasional sales at unchanged prices.

**Billets.**—Business coming to the mills continues light, notwithstanding the fact that price concessions are to be had. Sales of axle billets have been made at a reduction from recent prices, while open hearth rolling billets are to be had at \$22.40 and ordinary forging billets at \$27.40, delivered in this vicinity. Consumers, however, continue to place orders for quantities covering their immediate needs rather than for extended requirements.

**Plates.**—The demand continues of an irregular nature, principally confined to miscellaneous orders, which together with specifications on contracts about enables Eastern mills to maintain an even rate of production. Structural plates continue the most active, although the demand for ship plates is promising. While no definite information is available reports of price concessions continue to be heard and it is not unlikely that quotations for desirable business would be lower than those for miscellaneous orders, for which 150c., delivered, is quoted for ordinary plates.

**Structural Material.**—While there is a fair inquiry for small lots of plain shapes the demand for fabricated material of any importance in this district is less pro-



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nounced. Contracts covering several buildings involving a few hundred tons of material have been closed. New bids will probably be asked for the new Municipal Convention Hall, as proposals exceed the appropriation for the work. Several hotel projects are talked of, but have not yet been sufficiently developed. Several small bridge contracts are pending, and an inquiry for a new span, requiring about 500 tons, for one of the Pennsylvania Railroad bridges crossing the Schuylkill River is before the trade. Current reports of price concessions are heard, but neither buyers nor sellers admit that any cutting has been done, and 1.50c., delivered, continues to be named for ordinary business in plain shapes.

**Bars.**—Makers of refined iron bars appear to need business, and competition has been sharper for what few orders have come out. Extremely low prices are talked of, but 1.15c., mill, appears to be the minimum for desirable business and not all the mills are willing to go so low. A full range of the market is from 1.22½c. to 1.27½c., delivered, the inside quotation being available for desirable specifications only. Steel bars continue quiet at 1.35c. to 1.40c., delivered.

**Sheets.**—A moderate amount of small business is being placed with Eastern mills, not sufficient, however, to keep them operating satisfactorily. Producers in this district have had to meet concessions on Western sheets, and low prices have resulted in a wage reduction of 10 per cent. to be made October 1 at the mills at Conshohocken, Pa.

**Coke.**—Occasional sales of foundry coke, both on contract and for prompt shipment, have been made, but transactions are not large. Heating coke is a trifle more active and is becoming scarcer. Very little business is moving in furnace coke; one fair inquiry is before the trade, but the bulk of the business is in small lots for early delivery. Prices are unchanged, the following range per net ton being named for delivery in buyers' yards in this vicinity:

Connellsville furnace coke.....	\$3.80 to \$4.00
Foundry coke.....	4.25 to 4.60
Mountain furnace coke.....	3.40 to 3.60
Foundry coke.....	3.85 to 4.20

**Old Material.**—A further decline in prices of practically all grades is to be noted. Consumers are still out of the market and take on only bargain lots, which, as a rule, represent forced sales. No. 1 heavy melting steel scrap commands from \$12.50 to \$12.75, delivered, at which figures occasional odd lots are moved. Any effort, however, on the part of consumers to take on any tonnage would immediately develop higher prices. Transactions between dealers are extremely light. Moderate sales of wrought scrap at lower prices are noted, but the demand for the rolling mill grades of old material is comparatively light and sales made are usually small and at a lower range than quoted last week. The following range of prices, while largely nominal, about represents the basis at which business could be done for delivery in buyers' yards, eastern Pennsylvania and nearby points, taking a freight rate from Philadelphia varying from 35c. to \$1.35 per gross ton, for shipment ranging from prompt to the remainder of the year:

No. 1 heavy melting steel scrap.....	\$12.50 to \$12.75
Old steel rails, rerolling (nominal).....	13.75 to 14.25
Low phosphorus heavy melting steel scrap.....	16.75 to 17.25
Old steel axles (nominal).....	18.00 to 18.50
Old iron axles (nominal).....	23.50 to 24.00
Old iron rails.....	17.00 to 17.50
Old car wheels (nominal).....	12.50 to 12.75
No. 1 railroad wrought.....	14.50 to 15.00
Wrought iron pipe.....	11.75 to 12.25
No. 1 forge fire.....	10.50 to 11.00
No. 2 light iron (nominal).....	6.50 to 7.00
Wrought turnings.....	8.00 to 8.50
Cast borings.....	7.50 to 8.00
Machinery cast.....	12.50 to 13.00
Railroad malleable (nominal).....	11.00 to 11.50
Grate bars, railroad.....	9.50 to 10.00
Stove plate.....	9.50 to 10.00

### Cincinnati

CINCINNATI, OHIO, September 20, 1911.—(By Telegraph.)

**Pig Iron.**—Including stove makers, the foundry iron melt in this vicinity shows an increase, and as a consequence shipments on contracts are moving along in a very satisfactory manner. However, this improvement has not produced any new business, and if anything there is a slackened demand for foundry grades that is said to have brought out offers from a few Southern producers to extend deliveries through the last quarter at the minimum prompt shipment quotation. There is an inquiry before the trade for about but aside from this little interest is taken in the situa-

tion by consumers as the majority of orders now placed 20,000 tons of basic iron for a southern Ohio melter, cover only immediate requirements. Northern foundry grades are holding reasonably well and \$13, Ironton, for No. 2 foundry is the minimum quotation, with some producers holding out for \$13.50. A 400-ton lot of No. 2 foundry was taken by a northern Ohio buyer at \$13.25, shipments running through December. For shipment this year 500 tons of Southern No. 1 soft was contracted for by a Central Western consumer on a basis of \$10.50, Birmingham. Continued hesitancy is manifested on the part of both buyer and seller as to next year's business, though it is rumored that orders have been solicited at figures very close to present quotations for first quarter delivery. For nearby shipment 1000 tons of malleable went to a Michigan manufacturer at the prevailing market price, and it is rumored that an additional round lot will be bought by another consumer before the end of the week. Based on freight rates of \$3.25 from Birmingham and \$1.20 from Ironton, we quote, f.o.b. Cincinnati, as follows, for prompt shipment:

Southern coke, No. 1 foundry and 1 soft.....	\$14.00 to \$14.25
Southern coke, No. 2 foundry and 2 soft.....	13.25 to 13.75
Southern coke, No. 3 foundry.....	12.75 to 13.25
Southern coke, No. 4 foundry.....	12.50 to 13.00
Southern gray forge.....	12.50 to 13.00
Ohio Silvery, 8 per cent. silicon.....	16.95 to 17.20
Lake Superior coke, No. 1.....	14.70 to 14.95
Lake Superior coke, No. 2.....	14.20 to 14.45
Lake Superior coke, No. 3.....	13.70 to 13.95
Basic, Northern.....	14.20 to 14.45
Standard Southern car wheel.....	25.50 to 25.75
Lake Superior car wheel.....	19.00

(By Mail.)

**Coke.**—The inquiry is very light. The only business transacted in foundry grades is for carload lots, for prompt shipment, to cover immediate requirements. A southern Ohio furnace contracted for a supply of 48-hr. coke up to April of next year. The amount involved averages about 150 tons per day. Quotations are unchanged, with Connellsville furnace coke offered around \$1.55 per net ton at oven for prompt shipment and at about \$1.65 for future delivery. Both Wise County and Pocahontas furnace grades are quotable at an advance of 10c. to 15c. above these figures. Foundry coke is selling in all three fields around \$2 to \$2.30 per net ton at oven, with rumors that concessions have been made for desirable business.

**Finished Material.**—Sheets show considerable activity. Buyers seem to think that bottom prices have been reached and are reported to be placing orders quite freely. Both structural material and steel bars are also in fair demand, although there are rumors that mill prices on steel bars have softened somewhat. The local warehouse quotation on bars is around 1.65c. and that on structural material is about 1.75c. Hoops and bands are quiet and railroad track material is very sluggish.

**Old Material.**—The market continues weak. Consumers do not show any desire to contract very far ahead, and the principal business transacted is of a hand to mouth variety. The railroads have large quantities of scrap to sell, but present prices are not at all attractive. The approximate prices paid by buyers delivered in their yards, southern Ohio and Cincinnati, are as follows:

No. 1 railroad wrought, net ton.....	\$10.25 to \$10.75
Casting borings, net ton.....	4.50 to 5.00
Steel turnings, net ton.....	5.50 to 6.00
No. 1 cast scrap, net ton.....	9.25 to 9.75
Burnt scrap, net ton.....	6.25 to 6.75
Old iron axles, net ton.....	16.25 to 16.75
Bundled sheet scrap, gross ton.....	7.25 to 8.25
Old iron rails, gross ton.....	13.25 to 13.75
Relaying rails, 50 lb. and up, gross ton.....	20.75 to 21.50
Old car wheels, gross ton.....	10.00 to 10.50
Heavy melting sheet scrap, gross ton.....	9.75 to 10.25

### Cleveland

CLEVELAND, OHIO, September 19, 1911.

**Iron Ore.**—One of the leading independent steel interests that cut down its shipping schedule from its ore properties very materially early in the season has decided to ship 100,000 tons more of ore than was planned and has contracted for vessel capacity to move it. One sale of 25,000 tons, half Bessemer and half non-Bessemer, was made during the week. No other business is in prospect, although it is probable that a few small lots will be sold before the season closes. Shipments are falling off. Some of the shippers are planning to have about all of their ore brought down by

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November 1, so that shipments after next month will be very light. We quote prices as follows: Old range Bessemer, \$4.50; Mesaba Bessemer, \$4.25; old range non-Bessemer, \$3.70; Mesaba non-Bessemer, \$3.50.

**Pig Iron.**—There is some demand for foundry iron for delivery over the remainder of the year in lots of 200 to 300 tons. A local consumer has bought 300 tons of No. 2 foundry from a Cleveland furnace at \$13.90, delivered. Another sale was 200 tons of No. 1 for outside shipment. Two sales are reported in central Ohio, one of 1200 tons of malleable and another of 1500 tons, about two-thirds malleable and the remainder foundry iron. A northern Ohio stove foundry has bought 1000 tons of high silicon iron. Another sale is 350 tons, part Northern and part Southern, to a northern Ohio stove works. All of the sales noted were for delivery during the remainder of the year. A local foundry is negotiating for several hundred tons of Northern and Southern iron. A northern Ohio furnace manufacturer has an inquiry out for 1000 tons for the first half. There are indications that regular quotations on Northern grades are not being firmly adhered to in all cases. Furnaces are asking 50 cents a ton over current prices for first half delivery but the advanced price is not bringing out any business for that delivery. Southern iron is quoted at \$10.25 to \$10.50, Birmingham, for No. 2, but it does not appear that \$10 iron has entirely disappeared. For Cleveland delivery we quote as follows for prompt shipment and for the last quarter:

Bessemer .....	\$15.90
Basic .....	\$13.75 to 13.90
Northern foundry No. 2.....	13.75 to 14.00
Gray forge .....	13.00 to 13.25
Southern foundry, No. 2.....	14.25 to 14.85
Jackson Co. silvery, 8 per cent. silicon....	17.30 to 17.55

**Coke.**—The condition of the market remains practically the same as it has been for several weeks. The only demand is for small lots of foundry grades, mostly for prompt delivery. Prices are stationary. We quote standard Connellsville furnace coke at \$1.50 to \$1.55, per net ton, at oven, for spot shipment, and \$1.60 to \$1.70 for the remainder of the year. Connellsville 72-hr. foundry coke is held at \$1.85 to \$2 for prompt shipment and \$2 to \$2.40 for contract.

**Old Material.**—The market is practically at a standstill. Both buyers and sellers are now playing a waiting game. There is a little inquiry but it appears to be in the nature of market feelers. While prices are weak the decline appears to have stopped and quotations are about the same as a week ago. A small degree of activity would have a tendency to stiffen prices. The Nickel Plate Railroad has a list out. Dealers' prices, per gross ton, f.o.b. Cleveland, are as follows:

Old steel rails, rerolling.....	\$12.50 to \$12.75
Old iron rails.....	14.50 to 15.00
Steel car axles.....	17.50 to 18.00
Heavy melting steel.....	11.50 to 11.75
Old car wheels.....	11.50 to 12.00
Relaying rails, 50 lb. and over.....	22.50 to 23.50
Agricultural malleable .....	10.75 to 11.25
Railroad malleable .....	12.00 to 12.50
Light bundled sheet scrap.....	9.50 to 10.00

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles.....	\$18.75 to \$19.25
Cast borings.....	6.50 to 6.75
Iron and steel turnings and drillings.....	7.00 to 7.25
Steel axle turnings.....	8.00 to 8.50
No. 1 busheling.....	9.50 to 10.00
No. 1 railroad wrought.....	11.75 to 12.00
No. 1 cast.....	11.25 to 11.75
Stove plate .....	9.50 to 10.00
Bundled tin scrap.....	11.00 to 11.50

**Finished Iron and Steel.**—Mills continue to get a moderate volume of small orders but consumers are buying only for immediate requirements. The unsatisfactory price situation has been aggravated by reports published in the daily press regarding further concessions and the market appears to be more unsettled. Structural material seems to be firmer than most other finished lines but there appears to be some shading in it also. Steel bars are being sold at 1.20c., Pittsburgh, but it is very probable that buyers can secure a concession of \$1 a ton on a desirable order. Sheets are being well maintained at 1.90c., Pittsburgh, for No. 28 black, and 2.90c. for No. 28 galvanized. Plate orders are being taken mostly at a concession of \$1 a ton from the 1.35c. price. The published report of a 2½ per cent. cut on wrought steel pipe by the Republic Iron & Steel Company is unfounded as far as this territory is concerned. The demand in structural lines is holding up well. The contract for the Cleveland Press Building, about 750 tons, has been awarded to the McMyler-Interstate Company, Cleveland. Bethlehem sections will be used. Bids are being

received for 4500 tons for the Cleveland Leader Building, the erection of which will not be started until next year. The city of Cleveland and the Nickel Plate Railroad are planning a grade crossing elimination at Kinsman road that will require about 1000 tons. The demand for iron bars is more active than for some time but prices are weak. We quote iron bars at 1.20c. to 1.25c., Cleveland. Hard steel bars are firm at 1.10c.

### St. Louis

ST. LOUIS, Mo., September 18, 1911.

**Pig Iron.**—With an inquiry for 300 tons of carwheel iron as the only indication of business, pig iron agents in the St. Louis territory cling to the idea that conditions are better than they have been for some time and that business will pick up before the turn of the year. Despite this belief, No. 2 Southern is quoted all the way from \$10.50 down to \$10, Birmingham, with not a single taker, and Northern iron can be had at \$13 to \$13.50, Ironton. The inquiry for the 300 tons of carwheel iron comes from a concern in Illinois to which a St. Louis sales agent sold 200 tons of the same grade last week. Stocks on the yards of the furnacemen are said to be decreasing, however, and the available supply of cars has diminished to such an extent that the opinion prevails that railroads will soon manifest a disposition to place car orders that will result in a better demand for iron.

**Coke.**—One large inquiry for coke is pending, and an agency reports a sale of 25 to 30 cars of Connellsville foundry coke last week. Otherwise business has been quite dull. Prices remain unchanged.

**Finished Material.**—All orders for structural material are being placed for quick shipment, with the tonnage about normal. Very little of the material is for stock purposes. Prices are unchanged from last week. A new 20-story office building is said to be in process of promotion, which will require about 4000 tons of steel. Specifications for bars have been coming in fairly well, with instructions for quick shipments. The Wrought Iron Range Company, St. Louis, let the contract last week for about 250 tons of reinforcing bars to G. S. Bergendahl, St. Louis, for the group of buildings for its new plant. Standard rails are not much in demand, and the prospects are not bright for any large tonnage before the turn of the year. One St. Louis road added 250 tons to a contract placed several weeks ago. Light rails are in fair demand only because of a lack of activity in the coal trade. Track fastenings are in fair demand.

**Old Material.**—The scrap iron market remains extremely dull. Dealers' prices, per gross ton, f.o.b. St. Louis, are unchanged, as follows:

Old iron rails.....	\$13.00 to \$13.50
Old steel rails, rerolling.....	13.00 to 13.50
Old steel rails, less than 3 ft.....	11.50 to 12.00
Relaying rails, standard section, subject to inspection .....	23.00 to 23.50
Old car wheels.....	13.00 to 13.50
Heavy melting steel scrap.....	11.50 to 12.00
Frogs and guards cut apart.....	11.50 to 12.00

The following prices are per net ton:

Iron fish plates.....	\$11.00 to \$11.50
Iron car axles.....	19.50 to 20.00
Steel car axles.....	18.50 to 19.00
No. 1 railroad wrought.....	11.25 to 11.75
No. 2 railroad wrought.....	10.25 to 10.75
Railway springs.....	9.75 to 10.25
Locomotive tires, smooth.....	14.50 to 15.00
No. 1 dealers' forge.....	8.50 to 9.00
Mixed borings.....	6.50 to 7.00
No. 1 busheling.....	9.50 to 10.00
No. 1 boilers, cut to sheets and rings.....	8.00 to 8.50
No. 1 cast scrap.....	10.00 to 10.50
Stove plate and light cast scrap.....	8.00 to 8.50
Railroad malleable .....	8.50 to 9.00
Agricultural malleable .....	7.50 to 8.00
Pipes and flues.....	8.50 to 9.00
Railroad sheet and tank scrap.....	8.50 to 9.00
Railroad grate bars.....	8.00 to 8.50
Machine shop turnings.....	7.50 to 8.00

### Birmingham

BIRMINGHAM, ALA., September 18, 1911.

**Pig Iron.**—The largest transaction reported for the past week involved 1200 tons of No. 3 foundry, for shipment within 60 to 90 days, at \$9.75 per ton at furnace. A lot of 750 tons of No. 4 foundry for comparatively early shipment was sold at \$9.50 per ton at furnace, and 250 tons of No. 2 soft, to cover the remainder of the year, was sold at \$10.50 per ton at furnace. With these exceptions the sales reported in-



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volved carloads and lots of less than 100 tons each, the aggregate of which is very small. There has been no change in open quotations by any of the producing interests; but it is now certain that the market for deliveries extending over the remainder of the year, even in strictly Southern territory, where round lots are offered, is represented by lower figures than \$10.50 for No. 2 foundry at Birmingham furnaces. It is stated that 25 cents per ton only has been conceded on Southern deliveries, although no large tonnages have come up recently to test the market. Buyers are apparently still indisposed to contract for first quarter shipment, and indications are that they provided for advanced requirements more extensively at the \$10 schedule than has been conceded heretofore. It is quite certain that prices now obtainable are not attractive, whether due to the extent of previous purchases or to the condition of the foundry trade generally. Active foundry capacity is considerably less than normal, but it has been well understood for some months that blast furnace activities were closely adjusted to the requirements of the foundry trade. Owing to the continued scarcity of low grades, we consider the market on a \$10.50 basis for grades below No. 3 foundry, but quote No. 2 foundry, for delivery over the remainder of the year, at \$10.25 at Birmingham furnaces, with a differential of 50 cents per ton for No. 3 foundry. Standard Southern basic iron is quoted at \$10.25 to \$10.75 per ton Birmingham furnaces, and charcoal iron at \$22.50 per ton at Birmingham.

**Cast Iron Pipe.**—A lot of 1000 tons of water pipe for Clarksville, Miss., the largest order placed in the week, was awarded the United States Cast Iron Pipe & Foundry Company. Quotations are so far unaffected by the manifest weakness in the pig iron market, but such conditions are largely due to the volume of business now on books of Southern producers. We continue to quote as follows for water pipe per net ton f.o.b. cars here: 4-in. to 6-in., \$23; 8-in. to 12-in., \$22; over 12-in., average \$21, with \$1 per ton extra for gas pipe.

**Old Material.**—There is a fairly good demand for all steel grades and more inquiry is being received for light cast and machinery scrap. The rading in wrought grades and old car wheels has been very light, with practically no demand for relaying rails and iron and steel axles. The status of prices is very uncertain, owing to the condition of the pig iron market, but dealers are making an effort to maintain a schedule as below. We quote these prices as nominal per gross ton f.o.b. cars here.

Old iron axles (light).....	\$13.50 to \$14.00
Old steel axles (light).....	12.50 to 13.50
Old iron rails.....	12.50 to 13.00
No. 1 railroad wrought.....	11.00 to 11.50
No. 2 railroad wrought.....	9.50 to 10.00
No. 1 country wrought.....	7.50 to 8.00
No. 2 country wrought.....	7.00 to 7.50
No. 1 machinery.....	9.50 to 10.50
No. 1 steel.....	8.50 to 9.00
Tram car wheels.....	8.00 to 8.50
Standard car wheels.....	9.50 to 10.50
Light cast and stove plate.....	7.00 to 7.50

### San Francisco

SAN FRANCISCO, CAL., September 12, 1911.

In some departments a little more inquiry is noted than for the last few months, but the market is spasmodic and uncertain, and on the whole trading is still slow. Both merchants and consumers are inclined to limit their supplies as closely as possible. A feeling of uncertainty is apparent regarding the outlook both for prices and for prospective requirements, and this feeling is at the moment intensified by the labor situation. The question of hours in the local shops, which was temporarily settled a year ago, has again been opened. The employers are endeavoring to restore the nine-hour day, which prevails at other coast points, and their success would doubtless involve a material increase of local business.

**Bars.**—Merchants are still carrying fairly large stocks of both soft steel and reinforcing bars, and their purchases are almost entirely of a small nature for sorting-up purposes. While business is coming out a little more freely in a small jobbing way, there is no real life to the market, important inquiries being almost entirely lacking. Most recent sales of reinforcing bars have also been small, but the movement is keeping about up to the recent average, and several buildings requiring a fair tonnage will be in the market

shortly. Local merchants are now maintaining bar prices quite firmly, the quotations from store, San Francisco, standing as before at 2. c. for steel and 1.90 c. for iron.

**Structural Material.**—A few fairly good orders have been placed recently on buildings which have been in the market for some time, but the situation is rather quiet all over the coast, with comparatively little new work in prospect. Last month's building records in the leading cities were fairly satisfactory, but included very few Class A structures, and plans for a number of important buildings around San Francisco have been changed from steel to reinforced concrete. The principal recent contracts placed in this city were about 850 tons for the Girls' High School and 250 tons for the Mendell Building, both of which were taken by the Ralston Iron Works. The McClintic-Marshall Construction Company has taken about 370 tons for the Southern Pacific station at Sixteenth street, Oakland. The Central Iron Works has a small job for the American Forge Company. The Union Iron Works job, on which figures were taken some time ago, is still withheld, and now appears rather uncertain. The Spokane, Portland & Seattle Railway is in the market for 22 bridges, which will require a heavy tonnage, but aside from this very little is coming up in Oregon and Washington. An inquiry is expected shortly on the Masonic Temple at Sacramento, Cal., and figures will soon be taken on the Mount Zion hospital in this city, but plans are still incomplete for several other local buildings on which inquiries have been expected. The Harbor Commissioners have ordered plans for three ferry slips, six piers, and a viaduct from the ferry building to Market street, which, if carried out, will require a considerable tonnage.

**Rails.**—A number of small orders were placed about the end of August, and since then a northern interest has ordered 9,000 tons from the Illinois Steel Company. There is considerable inquiry for grooved girder rails from street railroads all over the coast, and the outlook is favorable for quite a heavy tonnage in this line in the next few months. Small orders for standard sections are not as numerous as last month, but a few substantial inquiries are coming out. The demand for light rails for the summer has been below expectations, and there is no present indication of improvement.

**Sheets.**—Business is dull. A heavy movement of corrugated sheets usually occurs at this season, but merchants report general apathy in the consuming trades. The weakening of prices has caused a rather uneasy feeling, and there is a tendency to hold off until the market reaches a firmer basis. Moreover, merchants are fairly well supplied at present, and are anxious to work off the stock on hand before placing any further orders.

**Plates.**—Shipbuilding firms along the coast are still buying to some extent, though their principal requirements have been taken care of, and there is little additional work in prospect. There is a moderate demand for tank plates, but the large inquiries which have been counted on are slow to materialize. The Long Beach Consolidated Gas Company, Long Beach, Cal., is planning to erect another gas container of 1,000,000 cu. ft. capacity.

**Merchant Pipe.**—Orders for a considerable tonnage for the Western Water Company of the Coalinga oil field have been placed with the mills, after a delay of several months. Aside from this no large orders have been placed, and while some small business has been picked up from various water and gas companies the situation is not satisfactory. The jobbing trade has not noticeably improved, and although supplies in store are beginning to show signs of depletion, merchants are very reluctant to place their orders at the moment. This is due principally to the fact that some manufacturers are offering concessions in prices, and still further shading is anticipated by the local trade. There is a prospect of a fair buying movement among local merchants when values are definitely established.

**Cast Iron Pipe.**—Large individual orders are not in evidence this month, the principal transaction being the purchase of 650 tons of small pipe by the town of Porterville, Cal., from the United States Pipe Company. Small sales, however, have been sufficiently numerous to cause an increase in the aggregate tonnage over the early part of August. The city of Honolulu, T. H., will receive bids September 23 for 1700 tons of pipe. Considerable small waterworks development is to be undertaken in this State before the end of the year, and many towns are issuing bonds for improvements to be carried out next year.

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**Pig Iron.**—The local trade is quiet, as for some time past, sales being almost entirely of small lots. The range of prices remains about as before, foreign foundry iron being obtainable at \$20 to \$24, while No. 2 Southern is nominally valued at \$20.50.

**Old Material.**—The demand is gradually working into better shape, numerous small sales of steel melting and cast iron scrap having been closed of late, though no single transactions of special importance are reported. Supplies of steel melting scrap in local yards are becoming burdensome, and a considerable tonnage will probably be sent to East as soon as the rush of grain shipping is over. Mills using rerolling rails are well supplied at present, and are keeping out of the market, but several good-sized lots of relaying rails have changed hands lately, and offerings in this line find a fairly ready demand.

### The German Iron Market

**Pig Syndicate Arranges with Luxemburg-Lorraine Furnaces**  
BERLIN, September 7, 1911.

When the negotiations for an arrangement between the Pig Iron Syndicate and the Luxemburg-Lorraine furnaces were broken off last week without result it was generally believed that this would end all efforts for bringing about an understanding between the two parties. However, a few days later another meeting was arranged for to-day at Luxemburg, and this evening a dispatch from that city announces that an agreement has been reached. It is not known at this moment whether the Southwesterners have agreed to join the syndicate or only to work in harmony with it as to prices. In any case it appears that there will now be peace in the pig iron trade. It is expected that the syndicate will at once proceed to adopt a price schedule for 1912 and begin to take orders for delivery after January 1. Hitherto the furnaces have been refusing to take orders beyond the end of the year in the hope that the great combination might still be completed. It is probable that the syndicate will adopt somewhat higher prices. In expectation of this the Siegerland group have already put up their prices by 3 or 4 marks for supplementary orders for 1911 delivery, and it is reported that they have been doing considerable business on that basis.

Some belated commotion has been caused by the fact that the Steel Works Union had succeeded in obtaining an order for 27,000 tons of heavy steel rails from the South African Union. The price is given at 105 marks. The order was reported last month. American, English and Belgian works also put in bids, but were beaten by the Germans. The London newspapers indicate that considerable chagrin is felt there over the defeat of the English mills by their German competitors. The export demand for rails remains active and some promising orders are being negotiated. The activity in structural material remains unabated. The foreign markets are calling for increased amounts and export prices are steady at 105 to 106 marks f.o.b. seaport. Consumers of semi-manufactured steel products have begun to order for the fourth quarter. It is expected that their requirements will continue at about the same level as hitherto, and hence that the big mills of the Union will be able to keep on turning out product in excess of their allotments.

#### Activity in Bars, Plates and Wire

The bar trade continues in good shape, although new business has grown rather quieter, but prices are well maintained. According to one report the mills are making bars somewhat above their allotments. At any rate it is certain that they are very busy, and consumers are calling for shipments with considerable urgency. Dealers are trying to place orders pretty far ahead and to induce makers to cut prices, but they find the latter firmer in holding up their prices, and some of them, it is asserted, will take no orders beyond December, while some that do so are demanding higher prices. At the meeting last week of the bar mills the old plan of keeping up home prices by giving a heavy export drawback on the material consumed was again brought up, but it met with strong opposition.

In heavy plates the previous briskness is fully maintained and prices show a tendency to rise. The activity in this section has affected the trade in tin plates, in which the demand has grown more active and prices have hardened. At the fortnightly trading on the Düsseldorf Exchange last week the price of band iron was quoted at 127 to 130 marks, as compared with 125 to 130

marks at the previous trading. Wire mills are better employed, but prices remain very unsatisfactory. Mills running on wire rods are turning out somewhat more than their allotments call for.

It is announced that the new establishment of the Thyssens, near Diedenhofen, mentioned in this correspondence some months ago, is making rapid progress toward completion, especially the blast furnaces. The stoves are nearly finished. Work was only begun in March.

The stock markets, which have been greatly excited for some weeks over the probable dividend of the great Phoenix Company, were much disappointed to-day when an unchanged dividend of 15 per cent. was declared, and a heavy fall in Phoenix shares followed. The movement of iron shares for about two weeks has been pretty sharply downward, although it is stated there is nothing in the trade situation to justify this. The fall is due to overtrading on the stock exchanges, to political anxieties in connection with the Morocco affair, to the protracted drought and its damage to the growing crops. The Exchange need not have been disappointed with the Phoenix report, for it shows a gain of 3,677,000 marks in the net earnings on a total of 24,475,000 marks.

The reports this week from the Belgian market are again good, but prices are mostly unchanged. Bar prices are very firm, however, while heavy plates are rising.

A meeting of the International Rail Convention will be held at Munich about the end of this month. It is expected that among foreign rail mills Belgian, English and French interests will be represented.

### Buffalo

BUFFALO, N. Y., September 19, 1911.

**Pig Iron.**—Inquiry for an aggregate of about 9000 tons of foundry iron has been received in the Buffalo market in the past week, including one for 1000 tons, one for 1500 tons and one for 2500 tons, and most of this tonnage—practically all for this year's delivery—is still under negotiation. Sales have not run quite as large as in the previous week, attributable probably to the fact that furnaces are in such a well sold up condition for the remainder of the year that new orders are not specially sought after, and present price schedules are firmly adhered to. Contract shipments from furnaces have been exceedingly heavy, with a daily increasing demand for iron in foundry grades. Consumers who have been running on low stocks have undoubtedly found need of replenishing them, causing urgent requisitions to be placed with furnaces at a time when they are all shipping to full present capacity. For prompt and fourth quarter delivery we quote as follows, f.o.b. Buffalo:

No. 1 X foundry.....	\$14.00 to \$14.25
No. 2 X foundry.....	13.75 to 14.00
No. 2 plain .....	13.75 to 14.00
No. 3 foundry.....	13.50 to 13.75
Gray forge .....	13.50
Malleable .....	13.75 to 14.25
Basic .....	13.75 to 14.25
Charcoal .....	16.50 to 17.50

**Finished Iron and Steel.**—Business in general lines is of about the same volume as for last week, with prices still showing a lack of stability. In bars and plates buyers seem to hesitate about purchasing in any considerable quantities for their future requirements and are buying for present needs only, very little stocking being done by either consumers or jobbers. In some instances consumers are experiencing more difficulty in obtaining prompt shipment of bar material from mills. In wire products considerable inquiry has developed, particularly from Canadian buyers, and manufacturers of wire fence are sending out inquiries covering their needs running well into next year. Some business in wire nails has been done and prices in this line are somewhat steadier. The demand for sheets has been fairly active but at prices which yield little profit to producers. Structural material continues to lead in activity, with a large amount of business in sight. Bids will be received next week for steel for the Prudence Risley Hall, Ithaca, N. Y., requiring about 300 tons. Bids are also being received for the steel work for the foundry, pattern shop and warehouse buildings at Whitesboro, N. Y., being erected by Munson Bros., of Ithaca, about 300 tons. Sherman, Stillwell & Stalter, canal contractors, Lyons, N. Y., are taking bids for steel for highway bridges over the Erie Canal on their section and the Kinzer Construction Company, Montezuma, N. Y., for steel for locks and bridges for the Erie Canal contract which it holds. The Henry P. Burgard



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Construction Company, Buffalo, is also taking bids for steel for Erie Canal construction work at Fulton, N. Y., on the section for which it holds contract. The Eastern Concrete Steel Company, Buffalo, which has the general contract for the Victor Truck Company's new factory building, Buffalo, requiring a considerable tonnage of reinforcing bars, is taking bids for 100 tons of steel trusses. The Buffalo Structural Steel Company has secured contract for fabrication and erection of 200 tons for the Washington B. French store and office building, Buffalo; also for steel for the U. S. Hame Company's warehouse, Buffalo, requiring a small tonnage, and for structural steel for the Wheat Ice Cream Company's factory of reinforced concrete, for which the Buffalo Expanded Metal Company holds the general contract.

**Old Material.**—The market continues very dull and stagnant with very little interest displayed by consumers, who are sufficiently supplied for present needs. The only material moving is on contract shipment. Prices are stationary. We quote as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel.....	\$12.75 to \$13.25
Low phosphorus steel.....	16.00 to 16.50
No. 1 railroad wrought.....	14.00 to 14.50
No. 1 railroad and machinery cast scrap.....	13.50 to 14.00
Old steel axles.....	18.50 to 19.00
Old iron axles.....	22.00 to 22.50
Old car wheels.....	13.00 to 13.50
Railroad malleable.....	12.75 to 13.00
Boiler plate.....	12.50 to 13.00
Locomotive grate bars.....	11.00 to 11.50
Pipe.....	9.25 to 9.50
Wrought iron and soft steel turnings.....	7.15 to 7.40
Clean cast borings.....	7.00 to 7.25

### Boston

BOSTON, MASS., September 19, 1911.

**Old Material.**—Prices remain unchanged. The market has weakened, if anything, and little business of any sort has been transacted. Producers are not coming into the market, neither are the mills showing activity as purchasers. The prices quoted below are those offered by the large dealers to the producers and to the smaller dealers and collectors, per gross ton, carload lots, f.o.b. Boston and other New England points, taking Boston rates from eastern Pennsylvania points. In comparison with Philadelphia prices the differential for freight of \$2.30 a ton is included. Mill prices are approximately 50 cents a ton more than dealers' prices. The quotations follow:

Heavy melting steel.....	\$10.00 to \$10.50
Low phosphorus steel.....	11.45 to 11.95
Old steel axles.....	14.20 to 14.70
Old iron axles.....	17.70 to 18.70
Mixed shafting.....	12.75 to 13.25
No. 1 wrought and soft steel.....	11.00 to 11.25
Wrought iron pipe.....	9.25 to 9.50
Skeleton (bundled).....	7.75 to 8.00
Cotton ties.....	8.00 to 8.25
No. 2 light.....	4.50 to 5.00
Wrought turnings.....	5.75 to 6.00
Cast borings.....	5.00 to 5.50
Machinery cast.....	12.50 to 13.00
Malleable.....	11.00 to 11.50
Grate bars.....	6.00 to 6.50
Stove plate.....	8.50 to 9.00

### New York

NEW YORK, September 20, 1911.

**Pig Iron.**—A number of the inquiries mentioned last week are still before the trade and some are about to be closed. A Connecticut jobbing foundry has bought 3000 tons for the first half of 1912, but this is the only considerable contract on which deliveries run beyond this year. It appears to have gone to a central Pennsylvania furnace or to have been divided between that and a New York State furnace. For some time Pennsylvania competition with Buffalo furnaces for New England business has been sharp. Another Connecticut inquiry for 3000 tons has developed competition from Virginia. Furnaces there can reach New England water points at \$2.75 and thus deliver No. 2 X iron at \$15. In New Jersey some portion of an inquiry for 3000 to 6000 tons for this year has been closed this week by Eastern furnaces. Another New Jersey buyer is in the market for 750 tons and a Brooklyn melter for about 1000 tons. A sale of 500 tons for New Jersey delivery this year is reported. Prices have not changed in the past week. Buffalo furnaces find little canal boat tonnage available for the remainder of the season, and \$1.90 to \$2 would

have to be paid as canal freight from Buffalo to New England water points. The amount of cheap iron for this year's Eastern delivery is thus rather circumscribed. It is developing that even under the present limitations of the foundry trade more iron is being wanted for 1911 delivery than had been thought likely. We quote Northern iron as follows at tidewater: No. 1 foundry, \$15.50 to \$15.75; No. 2 X, \$15 to \$15.25; No. 2 plain, \$14.75 to \$15. Southern iron is quoted at \$15.25 to \$15.50 for No. 1 foundry and at \$14.75 to \$15 for No. 2.

**Finished Iron and Steel.**—In structural lines the amount of business placed has not been as large as in the preceding week. Plain material to jobbers and to manufacturers in lines apart from fabricating for bridges and buildings appears to be held at 1.35c., Pittsburgh; but, as heretofore, on building contracts this price is cut considerably. The New York Central, in addition to contracts reported last week, has let some New York barge canal bridges, requiring nearly 2000 tons. It will receive bids Saturday on two additional areas of the New York terminal work—KS50 and KV50—probably upward of 1000 tons. The Baltimore & Ohio has let a contract to the Baltimore Bridge Company for 300 tons of pier work on Staten Island, and the Boston & Maine has let a bridge of 225 tons to the Boston Bridge Works. Pending railroad work includes 300 tons for a Scherzer rolling lift bridge over the Manasquam River for the New York & Long Branch Railroad and 300 tons for Erie transfer bridges. Bids are to go in this week on the redesigned Filene department store building at Boston, 5000 tons. In the past week the local plate trade has been very quiet. On steel bars the 1.20c., Pittsburgh, basis is now common in the East, whereas until early this month 1.25c. was generally secured on ordinary Eastern business. Quotations are continued as follows: Plain structural materials and plates, 1.51c. to 1.56c.; steel bars, 1.36c. to 1.41c.; bar iron, 1.30c. to 1.35c., all New York. Plain material and plates from store, New York, 1.80c. to 1.90c.

**Cast Iron Pipe.**—The New York Board of Water Supply, which has charge of the work now under way for bringing water from the Catskills to this city, will open bids September 26 from contractors for furnishing and laying 8900 tons of 40-in. pipe and 340 tons of special castings in Brooklyn. This is the first contract involving cast iron pipe to be placed by this body. Quite a number of private undertakings of good size are under quiet negotiation. More general inquiry is coming out. While carload lots of 6-in. pipe are to be had from some foundries at \$21 to \$22 per net ton, New York, others are refusing to take orders under \$23.

**Old Material.**—Conditions appear to be growing worse from the standpoint of sellers of old material. Rejections of scrap bought at the prices prevailing a month or so ago are numerous. On low-priced scrap, such as cast borings and wrought turnings, those who are making rejections are declining to accept the material at less than an allowance of \$2 per ton. The eastern Pennsylvania steel mills are purchasing no steel scrap, but an occasional sale is being made to a dealer who still has a contract to fill. Rolling mill scrap is absolutely neglected. Foundries are buying cast scrap in small quantities only, and even then their purchases are far apart. Dealers report practically no inquiry in the market. Quotations are largely nominal, as follows, per gross ton, New York and vicinity:

Old girder and T-rails for melting.....	\$10.25 to \$10.50
Heavy melting steel scrap.....	10.25 to 10.50
Relaying rails.....	20.50 to 21.50
Rerolling rails (nominal).....	12.00 to 12.50
Standard hammered iron car axles.....	21.50 to 22.00
Old steel car axles.....	16.00 to 16.50
No. 1 railroad wrought.....	12.50 to 13.00
Wrought iron track scrap.....	11.00 to 11.50
No. 1 yard wrought, long.....	11.00 to 11.50
No. 1 yard wrought, short.....	10.00 to 10.50
Light iron.....	4.25 to 4.75
Cast borings.....	5.50 to 6.00
Wrought turnings.....	6.00 to 6.50
Wrought pipe.....	10.00 to 10.50
Old car wheels.....	10.50 to 11.00
No. 1 heavy cast, broken up.....	10.50 to 11.00
Stove plate.....	8.50 to 9.00
Locomotive grate bars.....	8.50 to 9.00
Malleable cast.....	10.50 to 11.00

**Ferroalloys.**—An important consumer is asking for 200 tons of ferrosilicon and sellers here are quoting \$60, Pittsburgh, for delivery over the first half of next year. It is understood that in other markets a lower price is made. There are a few inquiries for ferromanganese which is quoted \$38.25 to \$38.50 for delivery over the first half of next year.

# THE IRON AND METAL MARKETS

## Latest Pittsburgh News.

PITTSBURGH, PA., September 20, 1911.—(By Telegraph.)

The American Bridge Company has taken a contract for 7500 tons of structural steel for new buildings to house the open-hearth steel plant and new finishing mills of the Youngstown Sheet & Tube Company, Youngstown, Ohio, and has also taken a contract for 2200 tons of steel for a new railroad bridge for the Monongahela Railroad Company across the Monongahela River at New Geneva, Pa.

No. 1 furnace of the Shenango Furnace Company, Sharpsville, Pa., which has been out of blast for several months, has been rebuilt and enlarged and will be started on Thursday, September 21. It will be blown in on Bessemer iron, but in a short time will be put on basic and will have a daily capacity of 350 to 400 tons.

A leading local steel interest has just closed for the purchase of 6000 tons of ferromanganese for delivery over the first half of next year, paying \$37, Baltimore, for first quarter and about \$38 for second quarter. This is one of the largest purchases made in this district for some time, and the prices paid indicate a stronger market. Prices on ferrosilicon are very firm and 50 per cent. is being held at \$58, Pittsburgh.

## Metal Market

NEW YORK, September 20, 1911.

### The Week's Prices

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The Yale & Towne Mfg. Company, regular quarterly, 1½ per cent. and 1 per cent. extra, payable October 2.

The United Shoe Machinery Company, regular quarterly, 1½ per cent. on the preferred stock and 2 per cent. on the common stock, payable October 5.

The General Motors Company, regular semi-annual, 3½ per cent. on the preferred stock, payable October 2.

The Westinghouse Air Brake Company, regular quarterly, 2½ per cent., extra dividend 1½ per cent. and special dividend 1 per cent., payable October 5.

The Lake Superior Corporation will pay 2½ per cent. on its income 5s on presentation at First National Bank, Philadelphia, on and after October 1.

The Union Switch & Signal Company, regular quarterly, 3 per cent. on the preferred and common stocks, payable October 10.

The American Iron & Steel Mfg. Company, regular quarterly, 1¼ per cent. on both preferred and common stocks, payable October 2.

The American Mfg. Company, regular quarterly 1½ per cent., payable September 30.

The International Harvester Company, regular quarterly, 1¼ per cent. on the common stock, payable October 14.

### Banquet of American Ingot Iron Salesmen

Coincident with the starting up of its new East Side Works, the American Rolling Mill Company, Middletown, Ohio, tendered its entire sales and operating departments a banquet on the evening of September 1, following which addresses were made by members of the executive staff and heads of departments. The early history of the company, its remarkable growth during the past decade, and its firm stand for quality and square dealing were outlined in a most admirable manner by the president. The importance of co-operation between the sales and operating departments, as the best and only means of maintaining these standards, and the resultant benefit to all concerned, formed the main topic of discourse, and brought out many excellent talks. The occasion also served as a reception to the younger employees in the respective departments, who were given an insight into the company's broad principles and generous policies, as well as its comprehensive plans for future development.

The American Rolling Mill Company manufactures roofing, siding, conductor and eaves-trough from American ingot iron, a chemically pure, homogeneous iron of guaranteed analysis. Its great durability under accelerated corrosion and actual service tests has become the subject of favorable comment throughout this country, as well as abroad. The demand for this material made necessary the erection of a new \$4,000,000 plant, which makes this company practically the largest independent exclusive manufacturer of sheets in the United States. Its present position in the iron and steel industry can be largely attributed to an unceasing watchfulness of the character of its products, fair treatment of its patrons, and a spirit of loyalty and co-operation infused into every man in the organization.

Negotiations are under way for the purchase of the Inter-Ocean Steel Company, Chicago, Ill., by the Railway Steel Spring Company, 50 Church street, New York. At a meeting of the stockholders of the first-named company, held in Chicago September 19, a proposition to sell the property was ratified. It is understood that it is proposed by the Railway Steel Spring Company to issue \$3,500,000 bonds to pay for the Inter-Ocean plant, which was only completed about a year ago. The Inter-Ocean Company controls patents on a special process of manufacturing car wheels and tires. Its outstanding capital consists of \$2,500,000 stock and \$478,000 in 6 per cent. convertible notes. It is understood to have been successful from the start.

W. J. Holliday & Co., iron, steel and heavy hardware merchants, 326 to 390 West Georgia street, Indianapolis, Ind., have acquired a tract of about seven acres and will immediately erect steel frame buildings to accommodate their stock of structural steel and plates. The buildings will be equipped with electric cranes for handling material and machines will be installed for shearing, punching, etc. On the completion of these buildings the firm will add very largely to its stock of structural material and plates.

### American Engineers for the New Steel Works in India

Arthur E. Woolsey and Lansing W. Hoyt, who have been connected with the South works of the Illinois Steel Company, South Chicago, Ill., sailed this week for India to take important positions with the Tata Iron & Steel Company, Sakchi, Bengal, whose new steel plant will soon be put in operation. Mr. Woolsey will become general superintendent and Mr. Hoyt assistant general superintendent. O. O. Laudig, also formerly of the South Chicago works and more recently of Sault Ste. Marie, Ont., will sail soon to become superintendent of blast furnaces at the same plant.

Reference has been made in *The Iron Age* from time to time to the development of the plans of the Tata Company, for which Charles T. Perin, New York City, has been consulting engineer. The first of the two blast furnaces will be blown in early in October. The first of the four open hearth furnaces will be started soon after. The coke ovens, which are of the Koppe non-recovery type, are already in operation. The company has mined 200,000 tons of iron ore and has 60,000 tons of this in the stock bins at its blast furnaces. The cost of a 62 per cent. ore, much of it Bessemer, laid down alongside furnace, is but 46c. a ton. Mining is extremely cheap and the freight rate on a new line of railroad built from the company's iron mines to the steel plant is three mills per ton per mile. H. E. Judd, who has been superintendent of iron mining operations for the Tata Company, will arrive in this country from India next month. He was formerly with the Keokee Coal & Coke Company in Virginia. The general manager of the Sakchi plant is Robert G. Wells, who was at one time connected with the Youngstown Sheet & Tube Company, Youngstown, Ohio. The Government of India has guaranteed the new plant orders for 100,000 tons of rails to be taken at the rate of 20,000 tons a year, the price to be equal to that of English rails laid down in India. The output of the plant will be about 120,000 tons of finished material a year and it is expected a market will be found for all of it in India, the iron and steel imports at present being at the rate of about 600,000 tons a year.

### Connellsville Coke Producers Demand Lower Freight Rates

The coke producers of the Connellsville region held a meeting September 9 at the Summit Hotel, Uniontown, Pa., in the interest of securing equitable freight rates. Howard D. Mannington of Columbus, Ohio, was the principal speaker, and addresses were also made by E. H. Reppert, L. W. Fogg, T. S. Lackey, W. A. Stone, and O. W. Kennedy, all of Uniontown. It is proposed to wage a vigorous fight before the Interstate Commerce Commission to secure an adjustment of coke freight rates to correspond with the rates made from other coke producing regions to the various markets. The Connellsville producers are very much in earnest, and the meeting was characterized by forcible expressions of opinion. The following were present in addition to those named:

W. F. Soisson, W. W. Smith, Rockwell Marietta, Connellsville; J. P. Brennen, W. L. Kelley, Scottdale; J. U. Kuhn, W. A. Wilson, L. E. Walters, Greensburg; W. G. Rock, Pittsburgh; R. L. Bailey, Carmichaels; M. J. Garlow, W. H. Morris, J. M. Morris, Waynesburg; W. L. Graham, Masontown; John H. Moredock, Joseph Moredock, George B. Moredock, Jefferson; John A. Keys, Clarksville; Hamilton Newcomer, H. A. Davis, Brownsville; C. M. Lingle, Indiana; W. H. E. Royce, Republic; F. W. Forsythe, California; John Shultz, Fairbanks; John Husband, Mount Pleasant; L. H. Brownfield, Thomas B. Semans, R. E. Umbel, W. W. Parshall, John H. Walker, Samuel Stern, McClelland Leonard, Geo. H. Bortz, Geo. Whyel, A. Plumer Austin, O. P. Stone, A. Gaddis, F. C. Keighley, J. P. Topham, Guy B. Gilmore, J. Edgar Hustead, Harry Whyel, A. L. Moser, S. W. Henshaw, R. W. Gilmore, James R. Cray, C. J. McCormick, J. Ellsworth Hess, Walter Hess, W. M. Thompson, A. C. Sherrard, Francis Rocks and son, Geo. F. Titlow, D. B. Staft, W. B. Beeson, F. M. Semans, Jr., I. W. Semans, J. W. Abraham, John T. Robinson, Uniontown; R. L. Martin, Pittsburgh and Ernest H. Rowe, secretary of the Coke Producers' Association.

### The British Iron Trade

Reviews of the British iron and steel trade point out that conditions differ in the pig iron and finished material markets. The steel works are busy, and, according to the Iron and Coal Trades Review of London, there has been a recovery from the setback caused by the railroad strike disturbances. Demand is well maintained and there is an improved tone. Higher prices are being asked for galvanized sheets, particularly for forward contracts. Business in bars holds up well. The competition from foreign makers of semi-finished steel is spoken of as less keen, though this may be due to transportation difficulties. The general minimum for Bessemer sheet bars and billets is now £5. The plate mills have well filled order books, and specifications are coming in satisfactorily. The rail mills are fairly well employed, and recently Bolckow, Vaughan & Co. and the North Eastern Steel Company divided an order from Victoria for 22,000 tons. British newspapers complain, however, of the placing of an order with the German Steel Works Union last month for 27,000 tons of rails for the Union of South Africa. Concerning this and the loss of some other colonial orders for rails The Ironmonger says: "As we have often pointed out, the whole secret of British colonial orders for rails being taken by foreign mills is that the British manufacturers have tied themselves up in a combine as a result of which this country is unquestionably a loser in the long run." British rail manufacturers recently held a conference in London and it is now stated that an international meeting of rail interests will soon be held at Munich at which British, German, French and Belgian rail mills will be represented.

The British pig iron market is very dull, and the effect of the railroad strike is still felt. The Cleveland district producers are said to have lost fully a week's make during the strike, or about 45,000 tons. Statistics of stocks in Connal's stores show a decrease in August for the first time since June, 1908. On August 31 the total was 595,791 tons, or 4718 tons less than at the end of July. The increase in the past three years has been about 550,000 tons. Before the railroad strike the price of Cleveland warrants had been rising steadily, and 47s. 7½d. was reached. The decline up to September 7 was 11½d., 46s. 8d. being touched in the first week in September. Hematite iron has not responded to the activity in steel. This is attributed to the very plentiful supply of scrap steel. The latter can be bought at 45s. to 50s. a ton, whereas hematite pig iron stands at 61s. per ton for mixed numbers.

### More Factories Wanted in Pittsburgh

On a recommendation submitted by the Committee on Trade and Commerce of the Chamber of Commerce, Pittsburgh, F. R. Babcock, president of that organization, has appointed 12 leading business men to constitute the Industrial Development Commission, the main object of which is to secure new manufacturing plants for Pittsburgh and to further the manufacturing interests of the city in any way possible. The commissioners appointed are as follows: Chairman, H. P. Bope, vice-president Carnegie Steel Company; vice-chairman, F. F. Nicola, president Schenley Farms Company; treasurer, W. H. Donner, Union Improvement Company; Robert Garland, president Garland Nut & Rivet Company; J. M. Schoonmaker, vice-president Pittsburgh & Lake Erie Railroad; Morris Baer, of Kaufmann Brothers; A. M. Schoyer, general superintendent Pennsylvania Lines West; D. P. Black, president Real Estate Trust Company; James C. Chaplin, vice-president Colonial Trust Company; W. C. Coffin, Jones & Laughlin Steel Company; James F. Keenan, of Haugh & Keenan; Robert Finney, general agent Baltimore & Ohio Railroad.

The S. G. Taylor Chain Company, 315 to 319 West Indiana street, Chicago, is now running full force at its new plant at Hammond, Ind., on which construction was started early in the year and to which were moved in March and June, respectively, the plants formerly at Maxwell, Ind., and at Chicago. It is making a complete line of welded chain, notably its Taylor-Mesaba steam shovel chain. Advantages are obtained by operating one modern and fully equipped factory.

The Board of Trade of Welland, Ontario, has closed negotiations with the following companies for the necessary ground on which to erect manufacturing plants: John Deere Plow Company (Deere & Co., Moline, Ill.); Chemical Laboratories, Ltd., Midland, Mich.; United Motors, Ltd., Detroit, Mich.; Bemis Brothers Bag Company, Boston. The Canadian Automatic Transportation Company, which builds electric trucks for warehouse service, has its new plant at Welland nearly ready. The Page-Hersey Iron, Tube & Lead Company's new plant, which is nearing completion, will employ an additional force of about 300 men. The Canadian Billings & Spencer Company, also of Midland, has built an addition to its plant and Quality Beds, Ltd., has completed a new factory building. The Canadian Steel Foundries, Ltd., reports its full capacity occupied and the implement works in the same city are being operated overtime.

Two large additions to the plant of the Thomas B. Jeffery Company, manufacturer of Rambler motor cars, at Kenosha, Wis., are now being made. An extension of the drop forge shop, 64 x 106 ft., is in course of erection, while another building, 257 x 257 ft., is being added to the finished car department, making a total of 66,029 sq. ft. of floor space for these enlargements. Ninety-six per cent. of all Rambler parts are now made in the Kenosha plant. The addition to the drop-forge shop is to provide for the making of new forgings for the 1912 output. The factory is being enlarged to take care of the extension of facilities for the making of parts, rather than for an increased output, as the Rambler output has for the past three years been limited to 2500 cars.

The Destructor Company (Power Specialty Company, manager), 111 Broadway, New York, states that the Heenan high temperature destructor which it built for the city of Montgomery has been in operation for several months, fulfilling all guarantees and giving highly satisfactory results, and that the following Canadian cities have placed contracts for such destructors: Calgary, plant of 75 tons capacity per 24 hours; Moose Jaw, plant of 55 tons capacity per 24 hours. Both these plants have been so arranged that they can be duplicated when the necessity for extension arises.

The Superior Charcoal Iron Company, Grand Rapids, Mich., states that the item relating to that company published in *The Iron Age* of September 7 was erroneous in the assertion that all the company's blast furnaces are now making the Superior Special brand of charcoal pig iron. The Superior Special brand is made only at the Pioneer, Antrim and Marquette furnaces, all the company's other furnaces making regular charcoal iron only. The additional statement is made that the company is getting most satisfactory results from the use of this high grade of iron.

The Publicity Industrial Bureau of Ottawa, Canada, states that building construction in the city and outlying districts is now being carried out on a larger scale than ever before in the history of the city. The districts immediately outside the city limits are building both industrially and for residential purposes as rapidly as material and labor can be secured to carry on the work. That every trade in the city is in a most healthful condition is emphasized in the great demand for labor in the "want" columns of the daily papers, the demand including sheet metal workers, carpenters, electricians and other skilled mechanics as well as ordinary labor of all classes. Building permits in the city proper for 1910 amounted to \$7,577,040. Much of this work is just being completed.

The Millersburg Fifth Wheel Company, Millersburg, Pa., in addition to making a complete line of clip fifth wheels and iron rings, has taken up the manufacture of special rings used in the construction of automobile wheels; also of rings used in machine shops, foundries, boiler works and brass and coppersmithing works. It has just installed in its factory a new 100 h.p. boiler.

The Knoxville Iron Company, Knoxville, Tenn., is now rolling steel bars of all sizes. This is a new departure for the company, which heretofore has been an iron manufacturer exclusively. It is now prepared to furnish practically all sizes in steel that it has been making in bar iron.



## Personal

The office of the Electric Properties Company has been removed from 165 Broadway to the Maritime Building, 10 Bridge street, New York, directly opposite the south front of the Custom House, at the foot of Broadway. John F. Wallace, president of the company as well as of Westinghouse, Church, Kerr & Co., which has had offices for some time in the Maritime Building, requests that all business and personal communications be addressed to him at 10 Bridge street.

Albert E. White, at present in charge of the iron ore dressing experiments being carried on by the Jones & Laughlin Steel Company, has resigned in order to give the courses in the metallurgy of iron and steel and metallography which are offered at the University of Michigan. While connected with the university it is his intention to devote a portion of his spare time to consultation work, particularly with reference to those matters dealing with the microstructure of steel and ore dressing as applied to iron ores.

John Sargent, president of Domhoff, Joyce & Co., Cincinnati, Ohio, has returned from an extended vacation trip spent in the East.

Theron Crane, of the Eastern Steel Company, Pottsville, Pa., was among the arrivals in New York from Europe September 17.

Charles Booth, vice-president of the Chicago Pneumatic Tool Company, Chicago, has tendered his resignation to the board of directors to be acted upon at the September meeting.

James A. Lister has associated himself with the Hildreth Jones Company, Chicago, and will be the manager of the bridge, steel and cement departments of that company. He was formerly in charge of the Chicago branch of the Pittsburgh Testing Laboratory.

G. W. Wilson, who has been connected with the Iron City Coal & Coke Company, Pittsburgh, Pa., for the past eight years, is now associated with J. K. Dimmick & Co., Philadelphia, Pa., in the coal, coke and pig iron business.

Willis L. King, vice-president of the Jones & Laughlin Steel Company, Pittsburgh, has returned from Europe. Mr. King was one of the representatives of the United States at the international steel conference held at Brussels in July.

C. B. Nash, advertising manager of the Standard Sanitary Mfg. Company, Pittsburgh, is conducting a students' advertising club at the Pittsburgh Y. M. C. A.

Judge Elbert H. Gary, chairman of the United States Steel Corporation, arrived in New York from Europe September 17.

Nathan A. Taylor, of the N & G. Taylor Company, Philadelphia, has returned from a European trip, landing in New York September 17.

Powell Evans, of the Merchant & Evans Company, Philadelphia, is again at home, having arrived in New York September 17 from a sojourn in Europe.

**The Pittsburgh Foundrymen's Association.**—On the evening of September 15 the Pittsburgh Foundrymen's Association gave a smoker on the roof garden of the Hotel Lincoln, Pittsburgh. A dinner was served, after which H. A. McConaughy related his experience of two years among the Slavic and Magyar people, who make up so much of the labor in the foundries all over the United States. The lecture was extremely interesting and was illustrated with lantern slides. The next regular meeting of the association will be held on the evening of October 2, inaugurating at that time the fall and winter season.

A reduction in wages, amounting to about 10 per cent., has been posted by the Alan Wood Iron & Steel Company and the J. Wood Brothers Company, sheet manufacturers, Conshohocken, Pa. The reduction becomes effective October 1 and brings the wage rate back to that in force just prior to April, 1910.

## Obituary

JOHN EATON, president of the Oil Well Supply Company, Pittsburgh, died September 16 of heart failure at Atlantic City, aged 71 years. He was born in Esopus, N. Y. His education was obtained in the public schools of Brooklyn, night school and a commercial school. When 20 years of age he entered the employ of Joseph Nason & Co., New York, manufacturers of brass and iron fittings. In 1867 he started in business for himself, and in 1869, with E. H. Cole, formed the firm of Eaton & Cole, succeeded by the firm of Eaton, Cole & Burnham. In 1878 the Oil Well Supply Company was formed by a consolidation of a number of oil well supply concerns, including the supply department of Eaton, Cole & Burnham. Mr. Eaton had been president of the company for years and also was president of the Continental Tube Company when that concern became a part of the National Tube Company and he became one of the directors of the consolidated company. He remained on the board until the absorption of the company by the United States Steel Corporation. He also was interested in a number of Pittsburgh's financial institutions. He leaves two daughters. He was a member of the Duquesne, Union, Civic and Country clubs of Pittsburgh, of the Engineers' Club of New York and the Pennsylvania Society of the Sons of the American Revolution.

JOHN SOUTHER, inventor of the steam shovel and other devices, and builder of the first locomotive to take a train across the continent, died September 12 at Newton, Mass., aged 95 years. He was born in South Boston, served his apprenticeship in a local foundry and established the Globe Locomotive Works, continuing in active business for 60 years, retiring in 1881. In 1849 Mr. Souther sent around Cape Horn the first locomotive and steam shovel for the railroad from Sacramento to Fulton, a distance of 35 miles. About 18 years later, when the Union Pacific and the Central Pacific Railroad tracks were completed he sent two locomotives around Cape Horn, and they took the first train through from the Pacific. During the civil war, the government had the exclusive use of Mr. Souther's works, and the machinery for 16 war vessels was built at his plant. In 1851 he instituted a 10-hour schedule for his employees, being the first manufacturer in the country to do so. For more than 25 years he manufactured nearly all the sugar machinery that was used in Cuba. He leaves a son and a daughter.

CHARLES HEGEWALD, head of the C. Hegewald Company, New Albany, Ind., died last week, aged 80 years. He had not been actively engaged in business, owing to failing health, for two years. He had operated a foundry and machine shop under the name given above since 1873, although it was not incorporated until 1889. The company turned out a great many boilers for steamboats when the Ohio River traffic was at its height.

The newly equipped and excellent structural steel fabricating plant of Geo. W. Jackson, Inc., whose affairs have been in the hands of a creditors' committee, has been sold to the Vierling Steel Works. The Vierling Steel Works is successor to Vierling & McDowell, for many years one of the leading fabricating concerns of Chicago, with a plant at Twenty-third street and Stewart avenue. The present plant of this company has been extended to a point where it is now restricted from further expansion at the present location. The plant obtained from Geo. W. Jackson, Inc., is located on the North Branch of the Chicago River and on the Chicago & Northwestern Railway, Chicago. Its equipment is adapted to a wide range of fabricating work, and its facilities will afford to the new owner a fabricating capacity in Chicago second only to that of the American Bridge Company.

The Norwegian steamship Themis, under charter by the Nova Scotia Steel & Coal Company, discharged during the month of August three cargoes of Wabana iron ore at Philadelphia, Pa., aggregating 37,600 tons. Under ordinary conditions the voyage from Newfoundland to Philadelphia and return requires about two weeks, but this steamship discharged its cargoes at Philadelphia on August 1, 15 and 31, resulting in an unusually heavy total for a single month. The vessel has a normal carrying capacity of 12,600 tons of ore.

## Pittsburgh and Vicinity Business Notes

Hubbard & Co., Pittsburgh, manufacturers of shovels, spades, scoops and railroad track tools, are building an addition to their plant 100 x 200 ft. The building is to be of concrete, steel and brick construction. It will contain a new 25-ton electric traveling crane, bulldozers, punches and shears, drop hammers, roll threaders and motors. The building will be used as an addition to the bolt and nut department and for the manufacture of other lines, such as drop forgings and steel towers for the carrying of high transmission high tension electric wires. A new 35-ft. galvanizing kettle is also being added. The addition will be ready for operation in December.

The Mesta Machine Company, West Homestead, Pa., has received a contract for the building of a large metal mixer for the Pittsburgh Crucible Steel Company at Midland, Pa.

W. N. Kratzer & Co., Pittsburgh, builders of structural steel and iron work, report recent contracts booked as follows: Boiler shop and power house, Hagerstown, Md.; coaling stations for the Baltimore & Ohio Railroad at Rollsburg, W. Va., and La Paz Junction, Ind., and for the Delaware, Lackawanna & Western at Binghamton, N. Y.; St. Mary's Roman Catholic Church, Uniontown, Pa., roof trusses, roof girders, etc.; W. H. Park residence, East End, Pittsburgh, steel work; office and warehouse for the Pennsylvania Coal & Coke Company, Crescon, Pa.; First National Bank, Masontown, Pa.; water tank for the American Sheet & Tin Plate Company, New Kensington, Pa.; steel work for the C. W. Hartman building, East End, Pittsburgh, and steel work for a club house for the B. P. O. E.

The Beler Water Heater Company, Pittsburgh, has been reorganized by the election of James Hay, president; John Ellis, vice-president and W. J. Langenheim, secretary and treasurer. The new president was until recently president of the Ruud Mfg. Company, Pittsburgh. Mr. Ellis and Mr. Langenheim have also until recently been connected with the Ruud Company. It is the intention of the new board of directors to increase the company's capital stock to \$250,000 and secure a larger factory until the lease expires on the factory building at Twenty-ninth and Smallman streets, owned by Mr. Hay. New branch sales offices have been established in the principal cities.

It is the intention of the Youngstown Sheet & Tube Company, Youngstown, Ohio, to build at once an open-hearth steel plant of six 100-ton furnaces and the necessary blooming mill for rolling the output and it will also build a light plate mill for rolling plates from Nos. 8 to 16 gauge. It is the intention of the company to build additional finishing capacity, but definite plans have not yet been made.

The Allegheny Steel Company, Pittsburgh, Pa., works at Brackenridge, Pa., manufacturer of plates, sheets, boiler tubes and specialties, has opened an office in room 322 Ford Building, Detroit, Mich., in charge of E. R. Perkins, who has been connected with the company for eight years.

The Sebring Water Company, Sebring, Ohio, has employed Chester & Fleming, engineers, Pittsburgh, to prepare plans and specifications for the installation of additional pumping machinery.

The Keystone Bronze Company, Pittsburgh, has removed its general office from Thirty-ninth street to the Farmers' Bank Building, thus securing a central location from which it can handle its business between its three plants and its customers to better advantage. John S. Craig is secretary and treasurer of the company.

The Russell Machine Company, Twenty-eighth street and Allegheny Valley Railroad, Pittsburgh, Pa., has found its business increasing to such an extent that more room is required. It is therefore having plans made for a steel building in addition to its present warehouse, in which will be installed a 15-ton traveling crane. The company's principal business is dealing in second-hand machinery and other equipment, all material being thoroughly refitted in its shops before delivering.

The Braeburn Steel Company, Braeburn, Pa., manufacturer of crucible tool steels and special shapes, has established a branch sales agency at Rochester, N. Y., in

charge of Joseph N. King. This office will look after all New York territory except New York City proper.

The Pittsburgh Steel Company, Frick Building, Pittsburgh, works at Monessen and Glassport, Pa., manufacturer of wire rods, wire nails, wire, hoops and bands, has opened an office at Kansas City, Mo., in charge of John A. Graff; formerly connected with the sales department at the Pittsburgh office.

The Hudson Export & Import Company, 91-93 Wall street, New York, announces that it is now sole agent in the United States for RBF ball bearings.

## President Farrell on the Steel Corporation's Plans for Duluth

In connection with the recent trip of President James A. Farrell and other officers of the United States Steel Corporation and the presidents of its subsidiaries to Duluth the works of the Minnesota Steel Company, the corporation's Duluth subsidiary, were inspected. At a luncheon at the Commercial Club at Duluth a number of leading Duluth business men were present and an address was made by Mayor Cullum. In responding President Farrell said in part:

"The Steel Corporation has already expended large sums in the development of its mining properties and the extension of its transportation facilities, which work will be pushed until the best results possible have been obtained. It is the aim of the corporation to build a steel plant here complete in every respect for the manufacture of every class of steel product for which a market can be found.

"The estimated expenditures for the Minnesota Steel Company in Duluth, exclusive of land values, administrative expenses, personal injury and taxes, is \$10,170,000. This does not contemplate a cement plant, which will undoubtedly be built and will cost in the neighborhood of \$1,250,000, so that you will see that the expenditures on the steel plant alone for manufacturing purposes will reach a total of between \$10,000,000 and \$12,000,000. I would figure in round numbers that the corporation and subsidiary companies will eventually have invested on account of the Minnesota Steel Company and the Interstate Transfer and Spirit Lake Transfer Railroads \$16,000,000 or \$17,000,000. The contracts for a considerable part of this equipment have already been made. Those for the blast furnaces and stoves and accessories amounting to \$2,300,000 were placed within the past month and the engineers are already at work. The Interstate and Spirit Lake Transfer Railroad will connect the steel plant and other manufacturing plants on this site with all railroads entering Duluth and all future docks constructed on St. Louis Bay.

"A large enterprise such as the steel plant now being built here requires much patient study of conditions as to markets and their requirements; methods of production and manufacture; character of plant and future development. There are many other details that must receive the most thoughtful consideration in order that success may crown our efforts.

"As practical men of affairs you will agree that closed factories and idle workmen spell misery and disaster to any community. We should plan our work so that progress will be steady until the maximum of efficiency has been attained. There should be no retrogression, and, with reasonable co-operation and encouragement from you, we feel confident that the largest measure of success will be achieved with consequent benefit and prosperity to this great community."

The Taft-Peirce Mfg. Company, Woonsocket, R. I., is constructing a fourth story to its main building, about 60 x 300 ft., in which it proposes to locate its engineering department, factory and general offices. No additional machine tool equipment will be required at present. The company conducts a business as mechanical engineer and machine designing and contract manufacture of light machinery, tools and metal specialties.

The Thomas Laughlin Company, manufacturer of marine hardware, Portland, Maine, recently built a large machine shop, which it now has in complete running order. This company reports its business far ahead of the average at this time of the year.



## American Opportunity in Europe

Under the above title Capt. Godfrey L. Carden, well known to many of our readers, contributes an article to Harper's Weekly, which is in part as follows:

The important difference between manufacturing work abroad and at home lies in the ability of the American manufacturer to specialize. Under existing fiscal conditions our manufacturers have enjoyed the benefits of an enormous territory in which foreign competition has been practically eliminated. The result has been that many of them have been able to specialize; in other words, to confine their efforts to the manufacture of a very limited number of designs of special machinery; and in some instances American manufacturers have centered their efforts, as in the case of machine tools, on one design only, and have further restricted these efforts to even one size of a particular design.

Under such conditions, it has been possible for individual works to concentrate energy on the development of a special type of machine or machinery, and it is not to be wondered at that the superlative, seemingly, has been attained in some instances in the building of special machines. As the antithesis, there is a prominent French machinery house which undertakes to build 152 different designs of machinery for making machinery. The head of this establishment declared to the writer that the reason for handling so many machines was because of the limited territory available, adding that perhaps he, too, could specialize as do the Americans if his own country was practically restricted to French manufacturers. As in the case of this French house, so it is in general throughout Europe. Manufacturing works must expand their lines of output in order to be assured of sufficient business to keep the shops going. All this means the maintaining of great quantities of patterns and with the certainty of periods of idleness for much of this equipment. Here at once arises an increase in cost of manufacture. In other words, specializing, when accompanied by good executive control, generally means production at minimum cost and rapid building; and the firm which is not specializing may generally be classed as a follower.

Italy, France, and Austria-Hungary are prominent markets for machinery. There is activity throughout the whole of western Europe, but the developments going ahead in the countries mentioned are particularly noticeable. Russia must not be overlooked; but Russia to-day offers more in the line of future possibilities than immediate opportunity. In northern Italy, France, Bohemia, and Hungary will be found the best available markets to-day for American machinery; that is to say, markets which are the most readily accessible and where Americans will probably find a predilection in their favor.

The enormous demand in Italy to-day for machinery of all descriptions is in consequence of the tremendous development now going forward in the north of Italy. There is probably no section in western Europe that has a greater future than the territory lying on the southern slopes of the Alps. Electric power in great quantities is available for the plain country in and around Milan. The best engineers of both Italy and Switzerland are working in conjunction with the industrial leaders of northern Italy, and it is fair to predict that the next ten years will see enormous strides in Italian industrial development. Italy possesses her own iron mines, a climate in the northern section wonderfully adapted for industrial enterprises, excellent transportation facilities, and a seaboard close at hand.

The great manufacturing sections in northern Italy lie in or around Milan, Turin, and Genoa; there are also important manufacturing plants at Terni and elsewhere. The iron mines are more to the southward. Milan and Turin may be regarded as the two most important manufacturing centers, but to appreciate the situation rightly one must consider the entire southern slope of the Alps as given over to industrial activity. Manufacturing plants dot this territory in all directions, and there is no line of work, especially the working-up of iron and steel, to which the Italian does not seem capable of turning.

Hungary is rapidly developing into a manufacturing country, and the locomotives turned out from the Budapest Locomotive Works are largely patterned on American lines. Some of the most notable electric work in

Europe has had its origin in Budapest shops. In Hungary there is a decided pro-American sentiment; the very word America appeals to the Hungarian mind, and the cordiality and hospitality accorded to visitors from the United States are proverbial. The manufacturing works of Hungary and Austria proper are independent of outside countries for raw material, and the steel produced at Resicza, Hungary, and Witkowitz, Moravia, is of exceptionally high grade. Bohemia includes manufacturing works covering almost every line of industry. The building of the new Dreadnoughts for the Austro-Hungarian navy, together with their armaments and equipment, will be accomplished wholly within the monarchy.

The American representative who enters Austro-Hungarian territory can do so free from the prejudices that exist toward many Europeans. The question of the languages is always an important one, but it is the writer's experience that a knowledge of English, French and German will suffice for this territory. Austria-Hungary comprises 17 crown lands in which 20 different languages are spoken in everyday life. There is probably no territory in Europe more unfamiliar to our manufacturers than this Austro-Hungarian monarchy, and, when one considers the multitude of languages spoken, this is not strange.

## The Need of Stronger Packing

The Pennsylvania Railroad, through its department of publicity, emphasizes the necessity of better packing. It says:

Flimsy, insufficient packing of goods for shipment costs American manufacturers many thousands of dollars every year. The introduction of cheap substitutes for substantial wooden cases is responsible for much of the trouble, although modern conditions of transportation and freight handling make it more necessary than ever before that goods in transit should be thoroughly protected. American consuls abroad have protested for years that bad packing lost a vast amount of trade to our exporters. Now the abuse has become a serious matter in respect to domestic shipments. More attention is given all the time to making packages attractive in appearance, but less care is taken to make them safe. A Pittsburgh traffic expert lately estimated that "in 85 per cent. of the small-lot shipments moving to-day the construction of the material forming the box or crate, the size of the nails, etc., are entirely inadequate to protect the contents."

Fruit is shipped in paper-thin crates that are sometimes literally churned into pulp in transit. Tobacco is sent by rail in cases so flimsy that they can be perforated with a lead pencil. A shipment of tobacco in small bags arrived recently at Philadelphia with one-third of the cases so badly damaged that the contents could be easily removed through the breaks. Heavy hardware is seldom packed carefully enough to keep it from breaking through its casing. Very often no thought is taken of the damage that may be done to freight when packed in cars with heavy, rough or pointed articles.

It is impossible for the carriers to prevent damage under such circumstances. The greatest care may be used in stowing goods in a car at the beginning of a haul, but, as consignments for different stations are taken out, disarrangement follows that may be dangerous to the remaining freight, but a restowage at each stop of the train is impossible. All authorities agree that the way to save the large sums now lost through insufficient packing is to go back to substantial wooden cases. No safe substitute has been found for them, although the first cost of the flimsy materials may be less.

The Tuthill Spring Company, 760 Polk street, Chicago, having increased the capacity of its works about 25 per cent. last year, finds its ability to take care of its business fully up to the demand and will make no further increase this year. Its customers, who are largely wagon and buggy builders, are ordering springs in fair quantity and it is the expectation that this year's business will be good as to amount. The company also has a trade with pleasure automobile builders, who seem to be doing fairly well. It is the experience of the company, however, that motor truck builders are not having as great a demand as a year ago.

## New Portable Welding Machine

### A Recent Product of the Oxy-Carbi Company

A new portable oxy-acetylene machine has been recently placed on the market by the Oxy-Carbi Company, 516 Orchard street, New Haven, Conn. The acetylene generator is of the carbide to water feed type and it is emphasized that there is no possibility of the carbide rattling into the water while the machine is being moved

the generator are that the carbide chamber is entirely shut off from the water when not in operation, thus eliminating the danger of the carbide falling through and generating gas and the very small amount of air that is admitted to the machine when the machine is emptying. This air is not exhausted upon recharging with water and as the expansion tank which is the upper section of the generator is entirely shut off at this time the formation of any dangerous mixture of air and acetylene is eliminated since the only air left in the generator is the small amount in the tube through which the calcium carbide

falls to the water. In operation it is pointed out that the amount of gas generated is so closely proportioned to the work being done that regardless of where the weight is placed on the safety valve lever the valve is not called upon to operate. In this way any escape of gas in the vicinity of the machine when an operation is prevented and even though used in a closed room there is no apparent odor. After the machine is charged and the generation of the gas started the action is entirely automatic. The generation of the gas begins simultaneously with the consumption and continues as long as there is any demand, stopping when the consumption ceases. As soon as there is a demand for a fresh supply of gas, the generating process automatically starts again and can be kept up continuously or intermittently as long as any calcium carbide remains in the holder. It is emphasized that the process of generation does not give off any tarry substance to clog the pipe or the valve and there is no possibility of the carbide heating and igniting if the generator should be opened after it has become clogged.

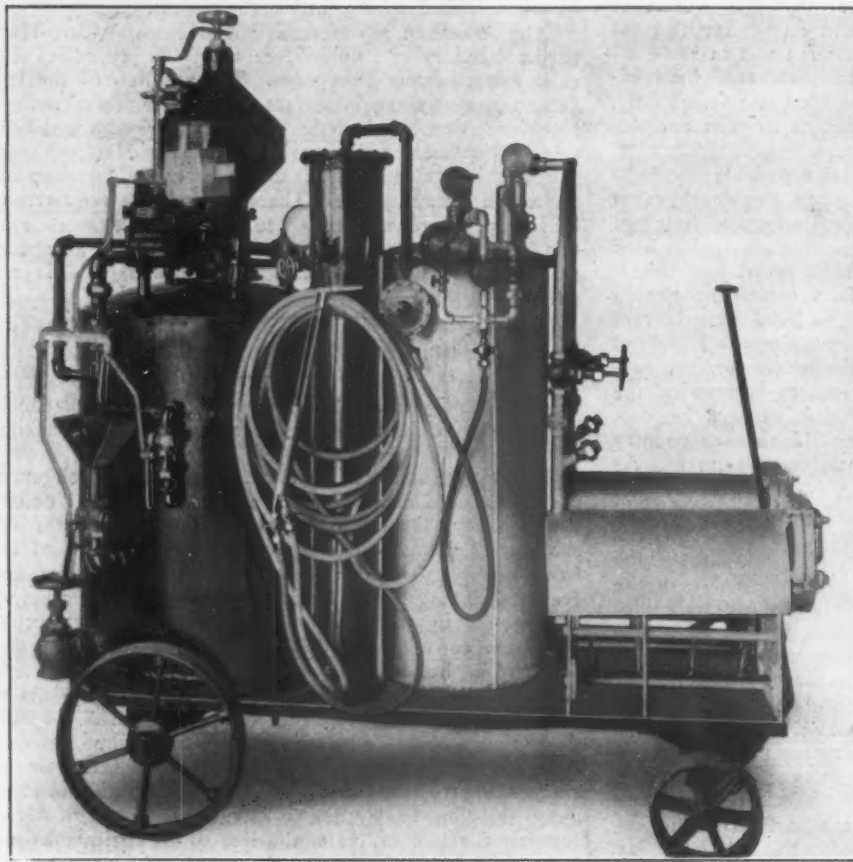


Fig. 1.—The New Portable Oxy-Acetylene Welding Machine Built by the Oxy-Carbi Company, New Haven, Conn.

from place to place and thus generating gas. Fig. 1 is a general view of the machine, while Figs. 2 and 3 show repairs that have been made with it. The former illustrates a gas engine base before and after being repaired in this way and in the latter a view of a group of typical repairs is given.

#### The Machine in Detail

The generator is said to be very simple in operation as it is actuated by the weight falling against pressure and the action regulates the pressure of the gas at the blow pipe very closely. Two of the special features of

The oxygen used is generated in the oxygen tank at the front of the machine from potassium chlorate as it is required. The oxygen is generated under pressure which the company believes gives as safe or safer a device than a steam boiler. If ordinary care is employed in preventing organic matter from mixing with the chemicals, there is very little danger of an explosion from this source. If the valve between the retort and the storage tank were closed and no provision made for the escape of gas through a safety valve an explosion might occur. An ordinary safety valve is of little use, for in blowing the oxygen carries with it a considerable amount of chlor-

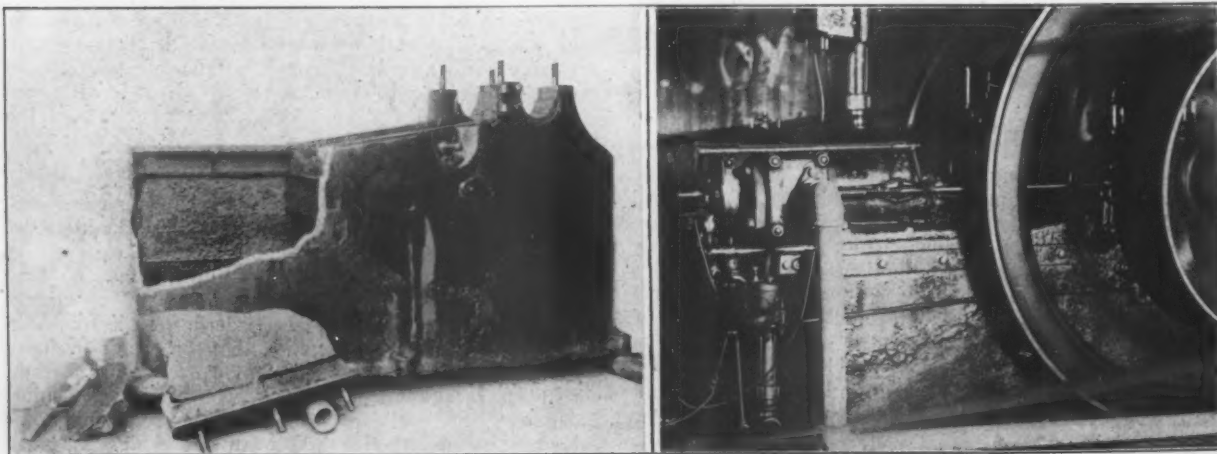


Fig. 2.—A Gas Engine Before and After Being Repaired by this Machine.



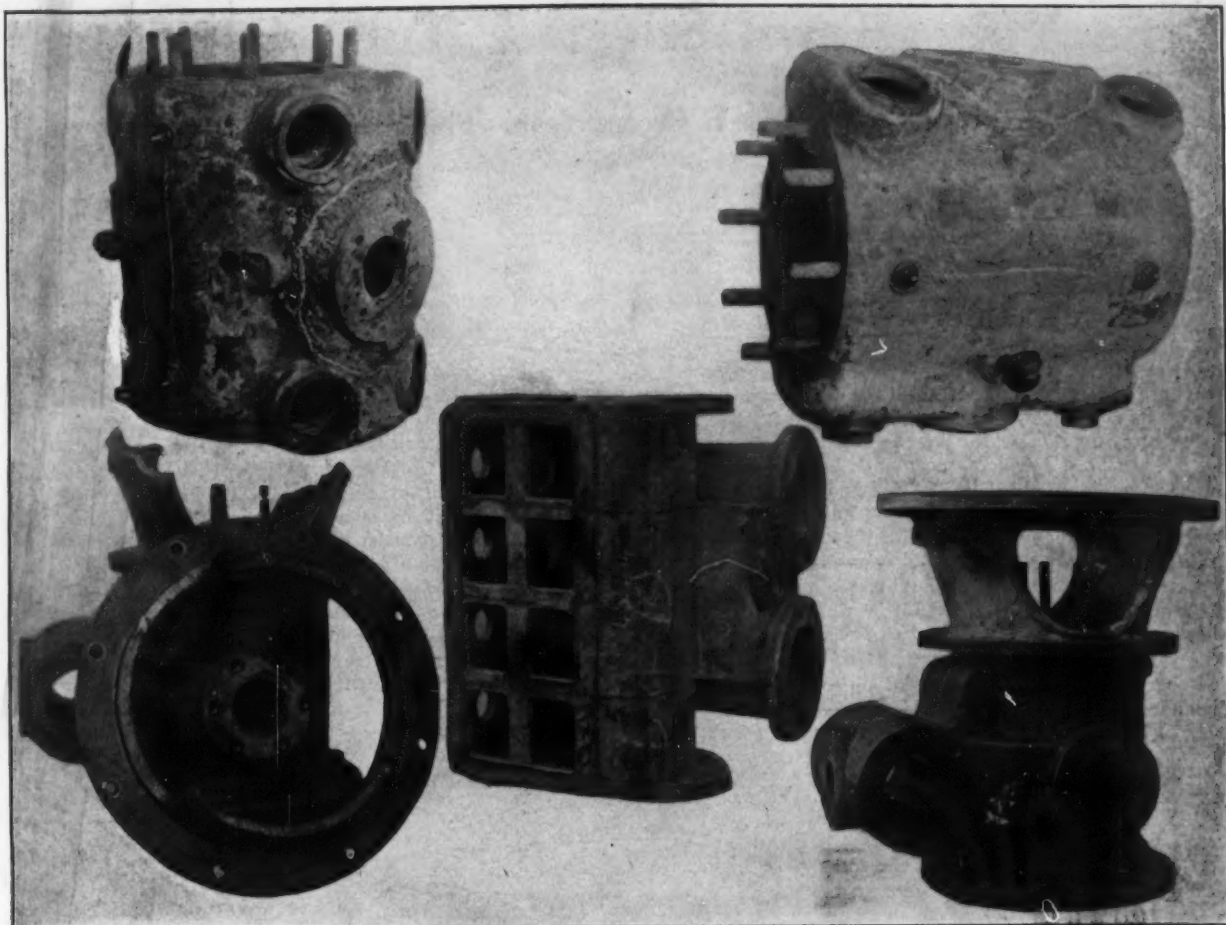


Fig. 3—A Group of Typical Repairs.

ine which will cut a channel in the valve seat making it worthless after a few times. In this machine, however, a special alloy is employed for the valves which overcomes this objection and at the same time the gas can be retained in the tank indefinitely if it is not used at the time of generation.

The blow pipe used with this outfit is very light in weight and can be used in close quarters. A number of tips have been provided which enables the one blow pipe to be used for handling a wide range of work extending from the very thinnest sheets to the heaviest of metal ordinarily encountered. By removing the welding tip and inserting the auxiliary nipple and cutting tube and the cutting tip it is possible to convert the blow pipe almost instantly into a very rapid-acting cutting torch.

#### Typical Repairs Made

The gas engine base shown in Fig. 2 is an example of the quick repairs which it is possible to make by using this machine. The base of the engine which was used for charging batteries was wrecked by a cylinder getting loose on one side. On account of the work performed by the engine it was necessary to have it back in service as quickly as possible and with the exception of drilling a few holes no other machine work was required to place it in commission a few days after the trouble occurred.

In Fig. 3 a group of typical repairs is illustrated. In the upper portion two views are given of a large air compressor cylinder in which expansion and contraction had to be overcome. At first the trouble with this cylinder apparently was the cracking of both sides of the water jacket by freezing. After the water jacket had been welded a further test showed a crack in the air chamber. The repairing of this crack seemed rather difficult as the cylinder consisted of three sections, the cylinder proper, the water jacket and the air chamber. The air chamber had the top removed after welding and was tested before the air chamber was replaced. Another crack developed and it was again necessary to remove this section. A second attempt was made to weld the chamber which proved successful and the cylinder has now been in operation for some little time.

The large bronze pump base casting shown in the

central portion of this engraving is another example of a difficult operation performed by this torch. A cold shut was found in the casting of the partition 12 in. down in the center hole. As the space was tapered to 2 in. at this point it made it difficult to operate the blow pipe and weld a piece into the partition. The use of an exceptionally short tip enabled a piece to be welded over this hole satisfactorily in spite of the limited space. Another hole in the partition was repaired by removing a piece from the end of the cylinder and replacing it. The two lower views show the replacing of the flange on a 16-in. high pressure cylinder of a tandem engine. This repair was made quickly at the power station in which the engine was installed and the engine was put back in commission without any machine work being necessary.

**Railroad Equipment Orders.**—The Frisco Refrigerator Line, a subsidiary of the St. Louis & San Francisco Railroad, has ordered 2500 refrigerator cars from the American Car & Foundry Company. The Erie Railroad has given orders for 45 passenger cars, 10 to be built by the Barney & Smith Car Company and 35 by the Pullman Company. The Cincinnati, Indianapolis & Louisville has ordered 1000 steel gondola cars from the American Car & Foundry Company. The Western Maryland may place orders for 5000 freight cars, 50 passenger coaches and 50 locomotives. The Vandalia has ordered 47 steel underframe box cars from the Pressed Steel Car Company. The Isthmian Canal Commission will buy 40 electric towing locomotives for towing vessels through the locks. The Chicago, Indianapolis & Louisville is taking prices on nine mikado locomotives. The Grand Trunk has ordered 10 switching locomotives from the Lima Locomotive & Machine Company. The Grand Trunk is also having 1000 steel underframe box cars, each of 60,000 lb. capacity, built at the Turcot works of the Canada Car & Foundry Company; the order is to be completed this year.

The Racine Steel Castings Company, Racine, Wis., manufacturer of crucible steel castings, is now furnishing vanadium and titanium steels in addition to its regular product.

# The Youngstown Sheet & Tube Company

## Details of Its Important Extensions in Recent Years—Finishing Mills Followed by Steel Works and Blast Furnaces

(With Supplement)

The plants of the Youngstown Sheet & Tube Company, Youngstown, Ohio, represent the development of an important independent steel company in a period identical with the life of the leading consolidation in the industry. They are an interesting example of the evolution of a rolling mill company, starting with finishing plant only and reinforcing its position by the erection of steel works and later of blast furnaces, meanwhile broadening its operations by adding a third line of finished products to those which it set out to manufacture. When it was organized in 1901 the company secured about 300 acres of ground at East Youngstown, upon which was erected in 1901 and 1902 a plant comprising 15 double puddling furnaces, a muck mill consisting of two 20-in. trains, a skelp mill for rolling up to 22½ in. wide, three tube mills and six sheet mills. The product then consisted of black and galvanized sheets, roofing sheets and pipe up to 8 in. in diameter, all made in both iron and steel.

In 1904 important additions were made to the pipe

that time, including the socket shop, machine shops, foundry, blacksmith shop, boiler shop and pattern shop.

### Important Later Additions

In the past four years the company has been making extensive additions and improvements to its plants, and mention of them has been made from time to time. The present article is designed to give with some detail a connected account of these, as a supplement to the description of the plant as it existed in 1906.

The additions consist of three blast furnaces, a mixer and pig-casting plant; eight sheet mills complete, including three galvanizing kettles; six tube mills; 10 puddling furnaces; a mixed pressure turbo-generator plant and other improvements. Including the additions, the company is now operating 14 sheet mills, six galvanizing kettles, 10 tube mills and 50 puddling furnaces. About two years ago the company bought the Morgan Spring Company's plant at Struthers, Ohio, near Youngstown. This

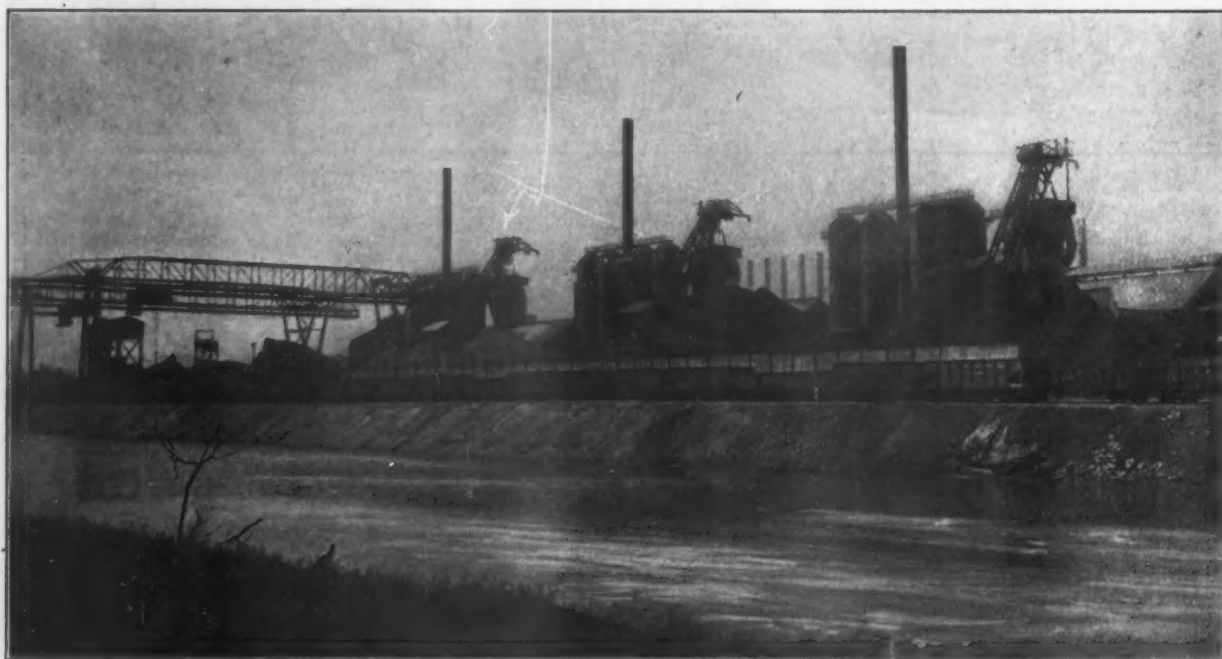


Fig. 1.—Blast Furnaces of the Youngstown Sheet & Tube Company as Seen from the River Side.

department, permitting 12-in. pipe to be turned out, and the output was brought up to 1000 tons per day of sheets, skelp and pipe. In 1905 the company made extensive additions, consisting of a Bessemer steel plant and finishing mills, to supply its own requirements of steel, and also to furnish billets and sheet and tin bars for the open market. The improvements included a cupola building, equipped with four 10-ft. 6½-in. cupolas; converter house, equipped with two 12-ton converters; bottom house for making converter bottoms and the necessary equipment incidental to that operation; pit furnace building, equipped with electric stripper and charging crane and four 4-hole pit furnaces; blooming mill with blooming shears, for making slabs; Morgan continuous billet mill; Morgan continuous sheet-bar mill; 42-in. universal plate mill and Morgan continuous 10-in. skelp mill. At the same time the shops were enlarged to meet the new requirements and the necessary boiler and electric power plants were installed. In its issue of August 2, 1906, *The Iron Age* gave a detailed description of the company's plants at

has been completely remodeled and its capacity doubled. It consists of a Morgan continuous rod mill, double strand, complete with the following finishing departments: wire drawing, wire nails, galvanizing, barb wire, square and diamond mesh fence. A description of the various additions and improvements follows:

### Blast Furnaces

The blast furnaces, of which a general view is shown in Fig. 1, are situated east of the steel plant, as indicated in the plan view in the accompanying Supplement, and occupy the whole of the eastern end of the site of the main plant. Two stacks have been in operation since November, 1908, and one stack since August, 1910, with provision made for a fourth. The furnaces were designed by Julian Kennedy, Pittsburgh, and are laid out with stoves, furnaces and cast houses in a line extending east and west.

### STACK CONSTRUCTION

The stacks are 22 ft. bosh by 88 ft. high. The hearth level is 17 ft. above that of the yard, giving ample height



to run the hot metal into ladle cars on the yard level. The stoves and cast houses are on the same elevation as the stacks. The crucibles are 15 ft. 2 in. diameter and 7 ft. 10 in. to the center line of tuyeres. They are jacketed with cast-iron cooling plates which have cast-in water-circulating pipes. There are also riveted steel hearth jackets  $1\frac{1}{2}$ -in. thick, extending 6 ft. 9 in. below the hearth level. The furnaces have six cast-iron columns. These have cast-iron bases, which are tied together by 5-in. tie bolts and sleeve separators.

Five brick blocks, 4 x 9 x  $13\frac{1}{2}$  in., extend 10 ft. 10 in. below the hearth level, the blocks being laid on end in courses, each course being laid at an angle of 45 deg. with the one beneath. Hard-burned common brick are laid from the fire brick to the yard level. The common brick foundation is graduated in three steps, beginning with a diameter of 37 ft. at the top, then stepping out to an intermediate diameter of 44 ft., while the bottom or yard diameter is 51 ft. Each section is enclosed in a steel foundation jacket 4 ft. high. Below the yard level the foundation is of concrete, the pad being octagonal, 72 ft. in

a double lift to remove bell or hopper. The gas hood is bolted over the hopper and forms the seat on which the skip bucket rests while discharging. The skip bucket is cylindrical, with a bell bottom and rod to which the skip carriage is attached. When the bucket seats on the top ring of the gas hood the bucket bell is lowered by the over-travel of the skip carriage, thus delivering the charge on the large bell. The skip bucket comes to rest at the bottom of the skip pit on a revolving table, which is operated by oil cylinders, thus giving uniform distribution. The skip is operated by an Otis Elevator Company's electric hoist, located in a hoist house over the bottom part of the skip bridge and adjoining the bins. The bell, top slide, skip carriage, turning cylinders and stock testers are all operated from the hoist house. The charging side of the blast furnaces is shown in Fig. 2.

The furnaces have closed tops and are equipped with four gas outlet connections, which lead to two downcomers and thence to a dust catcher. On one outlet is an 18-in. bleeder. From the dust catcher, which is 24 ft. in diameter with conical bottom and top, the gas passes

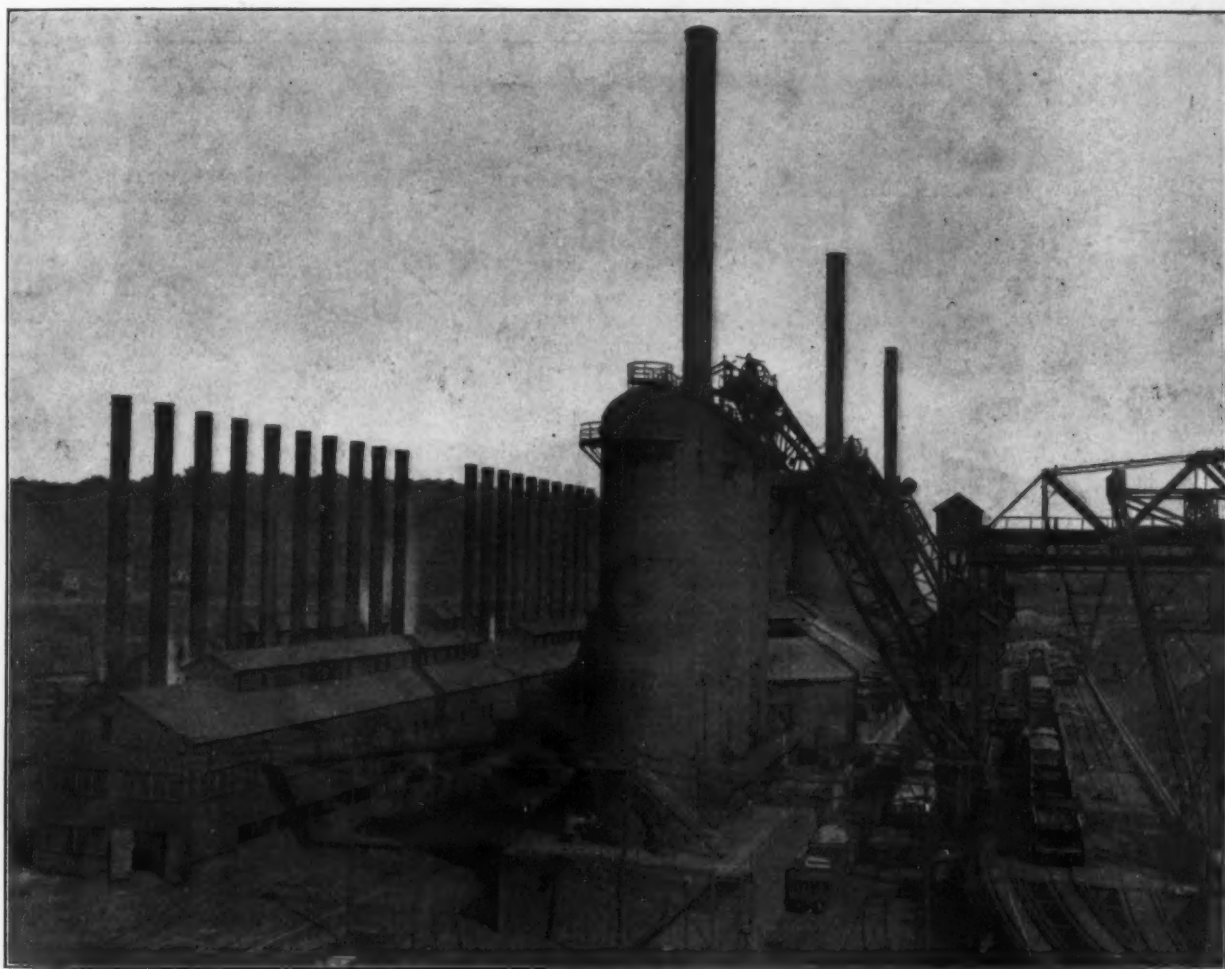


Fig. 2.—A View of the Blast Furnace, Showing in Detail the Charging Side.

diameter and 12 ft. thick. The furnaces are built with 12 6-in. tuyeres. There is a row of copper cooling plates below the tuyeres, and two rows of copper cooling plates between the tuyere coolers. The bosh has nine rows of copper cooling plates with bosh bands and separators, leaving very little exposed brick. The two furnaces first constructed have eight rows of cooling plates above the mantle, while furnace C has 10 rows. The coolers are fed from a combination trough over the bustle pipe, a manifold just above the tuyeres and a manifold above the mantle.

#### TOP FILLING ARRANGEMENTS

But one bell is used, the usual small bell being replaced by a sliding plate operated by oil cylinders. The large bell is 11 ft. 6 in. in diameter and is operated by a 12-in. oil cylinder. Double rods are used, slotted for keys a distance from the regular keys, providing for the making of

through two stationary Kennedy centrifugal gas cleaners and then to a 26-ft. Mullin gas washer. From this it is sent to the stoves and boiler house. Each furnace is served by four hot-blast stoves, 22 ft. x 102 ft., of the Kennedy two-pass type with central combustion chambers.

#### CAST HOUSES

The cast houses are 95 ft. 10 in. x 42 ft.  $5\frac{1}{4}$  in., and have pockets in the east end into which a spur leads from the yard tracks. Each cast house is served by a 25-ton Morgan Engineering Company's electric crane with 5-ton auxiliary hoist. The furnaces are equipped with Vaughn steam-operated mud guns and clamping cylinders built by Felix McCarthy.

The flue dust and molten cinder or granulated slag, as well as the iron, are delivered to standard gauge cars or ladles on the yard level. There is a brick-lined cinder pit

24 ft. in diameter and 35 ft. deep for granulating the slag, served by a Browning Engineering Company cinder trolley with 2-cu. yd. bucket. The iron notch is on an angle of 45 deg. with the center of the cast house. Iron runners lead to the north side of the cast house, with spouts for four ladles. The molten slag is delivered to ladles on the south side or to the granulating pit from two cinder notches and from the iron notch.

#### Ore Yard

The ore yard is 207 ft. 9 in. wide and 1051 ft. 6 in. long, its capacity being 600,000 tons, with provision made for further extension. It is spanned by two bridges, designed and built by Heyl & Patterson, with cantilever extensions over bins on the north side and river wall, and car unloader on the south side of the yard. The total trolley travel with bucket is 305 ft. 3 in. The buckets are the well-known Hulett type, of 10 tons capacity. From the bottom of ore yard to the highest lift of the ore buckets is 75 ft., which allows an area of cross-section through the ore pile of 11,340 sq. ft. Ore is dumped from cars by a Hulett car dumper, which travels on a track parallel

#### Boilers

The boiler plant parallels the furnace, lying 127 ft. to the north, and is equipped with 26 500-hp. Rust boilers, housed in a steel building 42 x 704 ft., covered with corrugated double-refined puddled iron. The boilers are in single settings with individual stacks 5 ft. 2 in. x 120 ft. The boilers are gas fired, coal being used only when gas is insufficient. The plant furnishes all of the steam required in the blowing room, power and pumping stations at the furnaces, and the surplus is carried in a 12-in. line to other departments.

The boilers are equipped with Murray regulating feed-water valves and Foster non-return checks in the steam outlet to header. Filtered water is fed to the boilers by three Epping-Carpenter compound duplex 14 x 25 x 24-in. pumps.

Ashes from the boilers are taken care of by two Heyl & Patterson ash elevators, which raise them to bins suspended from roof trusses; from the bins they are discharged through chutes into cars on the yard track south of the boiler plant.

The water-purifying plant for boiler feed water is the



Fig. 3.—Ore Yard and Stock Bins and the Ore Bridges and Car Dumper Which Serve Them.

to the south line of the ore yard and dumps directly to the yard, from which the ore is distributed by the bridges. Fig. 3 gives a good view of the ore bridges and car dumper.

#### Stock House and Bin System

The stock yard is parallel to the line of the furnaces and is 15 ft. below yard level and 32 ft. below hoist level. It is equipped with 29 ore bins, 21 coke bins and eight limestone bins of Hoover & Mason design, serving three furnaces. The bins are arranged to fill the scale car, which runs on a standard-gauge track on the stock-house floor beneath the center line of the bins. The stock is weighed on the car, then carried and discharged from it through a hopper into the skip bucket. The ore pockets occupy the south side of the stock house and extend its entire length; they can be filled from cars brought up the trestle approach or by a transfer car loaded by an ore bridge. Coke is carried to the bins via the trestle approach, and from the bins it is run into the scale car in the same manner as ore, except that the dust is screened from it. Limestone is handled in the same manner as ore. The limestone bins are filled from cars brought up the trestle approach.

We-Fu-Go system, installed by William B. Scaife & Sons, and now has a daily capacity of 92,000 gal. of purified water. The system now comprises seven filter beds, six 100,000-gal. settling tanks and a purified-water cistern of 50,000 gal. capacity.

#### Blowing Room and Power Station

The blowing room and power station is north of and parallel to the boiler house. The building is of steel and brick construction, 56 x 528 ft. The three furnaces are served by four Corliss cross-compound condensing blowing engines, 48 and 90 in. x 96 x 72 in., built by the William Tod Company, Youngstown, Ohio. The air inlet valves connect to air ducts, which extend beneath the cylinders and are carried to the outside, being so arranged that a dry-blast system can be installed. The blast from the engines is discharged into one header beneath the floor, with connections and valves so arranged that the middle engines can be used as spares for either furnace. One engine can supply a furnace, but the connections allow of using an engine and a half on a furnace if desired. The cold-blast mains to the furnace are laid underground.



The west end of the building is occupied by the power equipment, which comprises one Westinghouse Parsons turbo-generator, 1500 r.p.m., 2000 kw., 6600 volts, 3-phase, 25-cycle condensing; one Allis-Chalmers turbo-generator, 1500 r.p.m., 1500 kw., 6600 volts, 3-phase, 25-cycle condensing; one Allis-Chalmers turbo-generator, 1500 r.p.m., 1500 kw., 6600 volts, 3-phase, 25-cycle non-condensing; three Allis-Chalmers motor generator sets of 500 kw., each consisting of one 750-hp. synchronous motor, 6600 volts, 3-phase, 25-cycle; one 500-kw., 220 volts direct-current generator; one Allis-Chalmers 75-kw. exciter, driven by 112 hp., 220 volts direct-current motor; one Allis-Chalmers 75-kw. exciter, driven by 112-hp., 220 volts alternating motor; three Allis-Chalmers 160-kw. oil-cooled, 6600 volts to 220 volts power transformers; one Allis-Chalmers 15-kw. balancer set for lighting; one General Electric 25-panel switchboard.

In this building is a 50-ton Morgan Engineering Company traveling crane having a 10-ton auxiliary hoist. The oil-pressure pumps for hydraulic cylinders at the furnaces are located in this building and consist of two 12 x 4 x 18-in. duplex pumps and one 10 x 2½ x 12-in. pump, all operated at a pressure of 750 lb. per square inch. An accumulator is located close to the pumps and return pipes lead to the tank placed near the pumps.

34 x 24-in. air pumps, built by the Mesta Machine Company, Pittsburgh. Provision is made for extending the pumping equipment.

#### Mixer and Pig Casting Plant

From the blast furnaces hot metal is carried in 40-ton ladle cars direct to hot-metal mixers, of which there are two with a capacity of 300 tons each. The hot metal is transferred from the ladles to the mixers by two 80-ton electric traveling cranes, which have a 25-ton auxiliary hoist for pouring. The track from the mixer house to the Bessemer converter parallels the cupolas, the direct and remelted metal being handled by the same equipment.

Two double-strand pig machines lead north from the mixer building. The hot metal is transferred from ladles to the pig machine by the mixer cranes, which place the ladles in a cradle while pouring. The pig machines discharge the metal into standard-gauge cars on the yard level. The mixer building is of steel construction, 230 x 94 ft.

The Bessemer converting department, as described in the article of August 2, 1906, was served by four cupolas. The cupola plant now consists of five cupolas, 10 ft. 6½ in. diameter by 22 ft. high, with a total daily capacity of 1500 tons.



Fig. 4.—The Sheet Mill Building. New Mills in the Foreground.

#### Pumping Station

The pumping station is located in line with and at the west end of the blowing-engine room and power plant. It is of brick and steel construction above yard level; below yard level it is of concrete. The pump-house floor is 15 ft. below yard level and 9 ft. above low-water line of the Mahoning River, the building being 34 x 162 ft. It is equipped with a 15-ton hand crane.

The water is lifted by pumps from concrete wells, into which it flows from a concrete aqueduct extending underground to a river intake. The pumping equipment includes the following: One 20,000,000-gal. DeLaval turbo-driven single-stage turbine pump, supplying water for the condenser which serves pumps, blowing engines and power turbines; three 12,000,000-gal. DeLaval turbo two-stage turbine pumps for tank service; one 16,000,000 DeLaval turbine service pump, driven by a 500-hp. Crocker-Wheeler motor at 6600 volts; two 10,000,000-gal. DeLaval turbine service pumps, driven by a 150-hp. induction motor at 220 volts. The station has a total pumping capacity of 92,000,000 gal. in 24 hours.

The blowing engines, power turbines and pump turbines are served by a 114-in. Helander condenser and two 14 x

The soaking-pit equipment for the blooming mill now consists of five 4-hole pit furnaces, with a total capacity of 80 ingots.

#### Mixed Pressure Turbo-Generator Plant

A mixed pressure turbine plant is located north of the blooming mill engine house and consists of a General Electric 1500-kw. generator, 6600 volts, 3-phase, 25-cycle, driven by a 2000-hp. horizontal Curtis mixed pressure condensing turbine. It is supplied by exhaust steam from the blooming mill engine, the steam exhausting from the engine through a receiver into three Rateau regenerators, 6 ft. diameter by 40 ft. long, from which it flows into the turbine.

The plant is equipped with an 84-in. Helander condenser, built by the Mesta Machine Company, and a 12 x 26 x 21-in. air pump; one 35-kw. General Electric motor-driven exciter; one 35-kw. General Electric turbo-driven exciter, and one 6-panel Western Electric Company switchboard.

The building is of steel and brick construction, equipped with Whiting traveling crane of 15 tons capacity and operated from the floor. The arrangement is with a view to further extensions.

### Sheet Mills

The new sheet-mill building is 76 ft. wide by 336 ft. long and has a lean-to over the furnace department 36 ft. wide and 375 ft. long. The construction is of steel, with roof and siding of double-refined puddled iron sheets. The new building is in line with the old sheet-mill building, the latter having been altered to join the new construction, thus putting the combined equipment of 14 hot mills and six cold mills under one roof. Two cranes of 40 and 25-ton capacities with 5-ton auxiliary hoists serve the entire sheet and annealing department. The additional sheet-mill capacity placed in operation on April 16, 1910, is as follows:

- One 56-in. hot mill.
- One 44-in. hot mill.
- Four 38-in. hot mills.
- Two 34-in. hot mills.
- Two 56-in. cold mills.
- One 42-in. cold mill.
- One 40-in. cold mill.

There are the necessary heating and annealing furnaces and other equipment.

The hot and cold mills are in one line with four hot and two cold mills on each side of the engine, the cold mills being on the end of the train and acting as drags. They are driven by a direct-connected Corliss tandem-compound condensing engine, 34 x 64 x 60 in., 2000 hp., 30 r.p.m. The engine is connected to an 84-in. Helander condenser with 12 x 21 x 30-in. pump. The engine, condenser and pump were built by the Mesta Machine Company. There are eight combined sheet and pair furnaces of the Bailey type, each furnace having two sheet-heating chambers and one pair-heating chamber. The furnaces are built in pairs and conveniently located with reference to the mills they serve. The bars are brought in on narrow-gauge tracks between each pair of furnaces, there being ample room for piling a sufficient stock of bars. The furnaces are coal-fired and equipped with stokers built by the American Stoker Company. Blast pressure is furnished by a motor-driven fan with a capacity of 15,000 cu. ft. of free air per minute at 3 oz. pressure. The fan was built by the Buffalo Forge Company. The air blast is carried in a concrete conduit beneath the floor at the back of the fur-

naces. The furnaces of the original six mills have been changed to the double-combustion type and are equipped with stokers. The coal and ash-handling machinery described below serves these furnaces as well as the eight new ones.

The general coal supply for the stoker system is kept in a 150-ton concrete coal bin located under the coal trestle, which parallels the original sheet-mill plant. From this point the coal is distributed to small circular coal bins of 5 tons capacity, one to each pair of furnaces, by a 4-ton overhead coal trolley of single I-beam type, built by the Sprague Electric Company. The trolley has a coal bucket with a drop bottom, which is operated by a crane-man from the traveling cage. The coal is delivered to the stokers by hand from the small bins.

Ashes from the furnace are carried in a drop-bottom ash bucket by the overhead coal trolley to a concrete ash bin in the northwest corner of the furnace lean-to. Beneath this bin is a narrow-gauge track, which is an extension of the skelp-mill gas-producer ash track. Ashes are discharged from the bin into a car by hand-lever operated gates in the bottom of the bin, and the cars are transferred to the ash hoist which serves the skelp-mill producers and the yard boilers, and this hoist loads the ashes into standard-gauge cars.

The additions to the annealing department consist of four double 4-box gas-fired furnaces. These are east of and in line with the sheet and pair furnaces and are adjacent to the original annealing furnaces of somewhat similar design. Gas is furnished by two 10-ft. Morgan Construction Company's gas producers, which are located in a building adjoining the main lean-to and directly north of the annealing furnaces. Ashes from the producers are disposed of by the same trolley system described above.

The new plant is equipped with scales for weighing the product; with three 126-in. and one 154-in. sheet-squaring shears, four steam doublers and roll lathes. The mills, shears, doublers and lathes were built by the United Engineering & Foundry Company, Pittsburgh.

The new warehouse is of steel and brick construction, 66 x 180 ft., and has been built at right angles to the main building and adjacent to the original warehouse. This

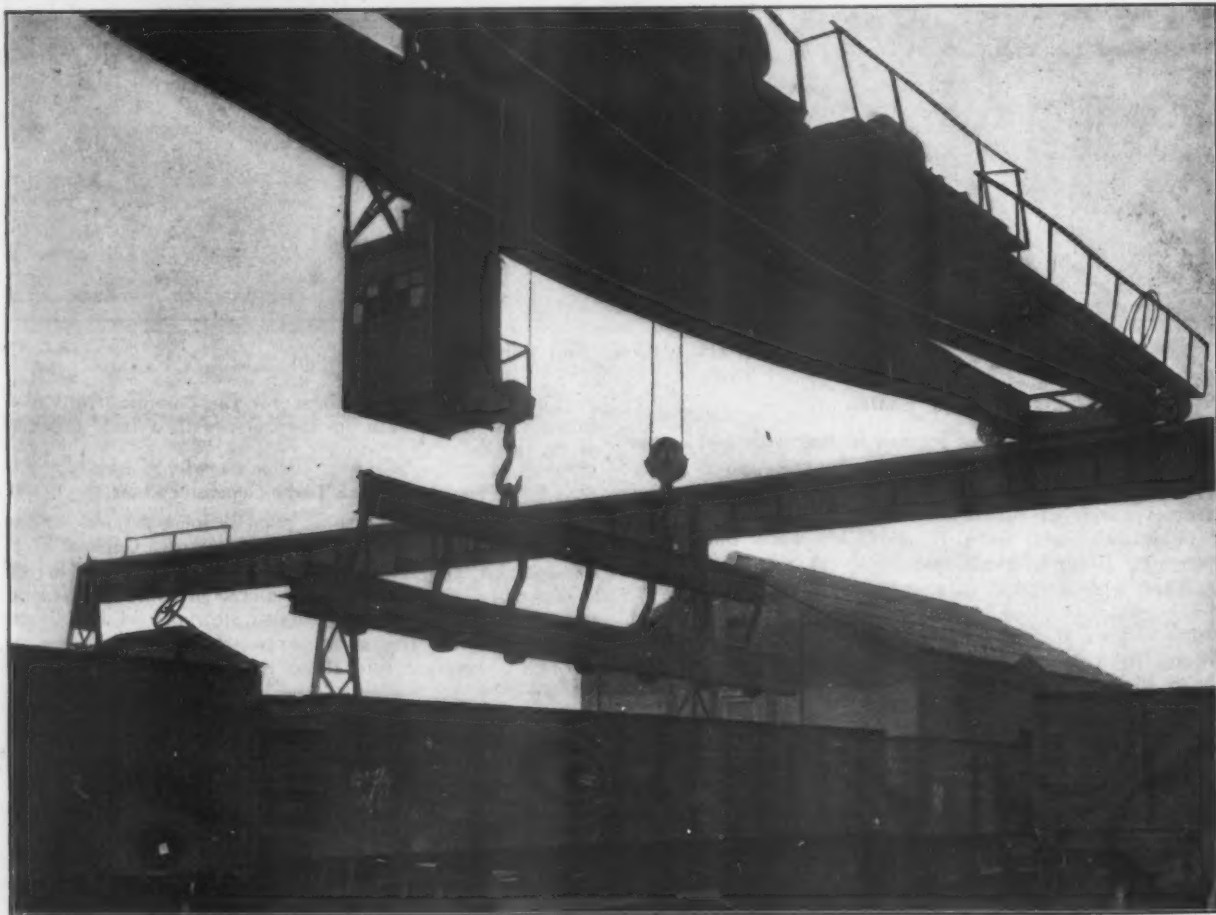


Fig. 5.—The Handling of Sheet Bars.





Fig. 6.—Method of Handling Slabs Coming from the Conveyor at the Slab Shear in Blooming Mill.

plant is equipped with a 10-ton traveling crane, built by the Morgan Engineering Company, Alliance, Ohio, and has a sheltered shipping platform on the south end.

Fig. 4 is a view in the sheet mill, while Fig. 5 shows the handling of sheet bars.

#### Sheet Galvanizing Department

The galvanizing department of the sheet mill has been enlarged until it now occupies a new building of steel and brick construction, 50 x 314 ft., with a lean-to of similar construction for storing spelter, coke, dross, acid, etc. The building contains four complete motor-driven mechanical pickling units of two vats each and six complete hot galvanizing units.

In galvanizing the so-called New Process is employed, the company being sole owner of the patent rights. The galvanizing units are driven by Lincoln variable-speed motors. The sheets are delivered from the galvanizing pots into the adjoining building, which was occupied by the original galvanizing department. This building is now used for the shearing, corrugating and bundling departments and for warehouse purposes.

#### Tube Mill Department

The tube mill department occupies the western end of the site and now consists of 10 mills, six butt-weld and four lap-weld.

- No. 1 is lap-weld, for sizes from 5 in. to 14 in.
- No. 2 is lap-weld, for sizes from 2 in. to 8 in.
- No. 3 is butt-weld, for sizes from 1½ in. to 3 in.
- No. 4 is butt-weld, for sizes from ¾ in. to ¾ in.

These were described in *The Iron Age* of August 2, 1906.

- No. 5 is butt-weld, for sizes from 1 in. to 1½ in.
- No. 6 is butt-weld, for sizes from 1 in. to 1½ in.
- No. 7 is butt-weld, for sizes from ¾ in. to 1 in.
- No. 8 is butt-weld, for sizes from ¾ in. to ¾ in.
- No. 9 is lap-weld, for sizes from 8 in. to 20 in.
- No. 10 is lap-weld, for sizes from 4 in. to 10 in.

The last six mills have been recently installed. They are housed in steel and brick buildings, with threading departments of the same construction conveniently located. These mills are somewhat similar in design to Nos. 1, 2, 3 and 4. They are motor-driven throughout. The furnaces are gas-fired, fuel being supplied by the original producers and from a line of new Duff producers, some of which are equipped with Treat automatic pokers.

The socket shop occupies three connecting buildings,

each 60 x 390 ft., of brick and steel construction and equipped with traveling cranes. In this department are furnaces, hammers and welding machines for making all sizes of sockets up to 6 in. for steam, gas and oil-country goods.

The skelp yards have been extended and new yards added. Warehouses of steel and double-refined puddled iron sheet construction have been added. They are fully equipped with cranes and all have standard-gauge tracks entering them.

The pipe-galvanizing plant is of brick, with wood trusses and roof. The building is 80 x 333 ft. The equipment is laid out in units, there being three hot-galvanizing units and one electro-galvanizing unit, each capable of handling all sizes of pipe. There is also a tar-coating plant.

#### Rod and Wire Department

The rod and wire mills are located on the Mahoning River in the town of Struthers, about one mile east of the main plant. The site contains 90 acres. The products manufactured are rods, wire (including black, galvanized, coppered and barbed), nails, staples, field fence, etc.

The rod mill equipment includes a Morgan continuous heating furnace and 16-stand double-strand Morgan continuous mill, housed in a building 55 x 350 ft. The mill is driven by a 34 x 64 x 48-in. horizontal vertical combination piston and Corliss valve condensing engine, built by the William Tod Company. The condenser is a 72-in. Helander, which, with the dry-air pump, was built by the Mesta Machine Company. The steam is furnished by seven Stirling water-tube boilers, six of which are of 250-hp. and one of 350-hp. capacity. The engine and drive are in a building 40 x 160 ft. adjoining the main building.

The cleaning house is 80 x 100 ft. and contains pickling vats, lime-coating vats, rusting conveyor and two jib cranes for serving this equipment, as well as loading trucks for the baker. The latter has eight tracks with a total capacity of 64 trucks.

#### DRAWN WIRE

The wire-drawing equipment consists of 18 benches with a total of 177 blocks, divided as follows:

- Five benches with nine 25 in. blocks.
- Three benches with eight 25 in. blocks.
- Two benches with six 25 in. blocks.
- Three benches with twelve 16 in. blocks.
- Five benches with twelve 22 in. blocks.

The equipment was built by the Morgan Construction Company, Worcester, Mass., and by Humphrey & Sons, Joliet, Ill. The wire-drawing department is housed in a steel building, brick lined, 120 x 260 ft.

In the annealing department are seven pit annealing furnaces, arranged to hold four pots each, and two muffle furnaces. All are served by overhead electric traveling cranes.

#### NAIL FACTORY

The nail factory is of brick and steel construction, 85 x 396 ft., and contains 98 nail machines, of which 92 are National Machinery Company's make and six were built by George Angell. The nails produced on these machines

the billet-yard crane runway and deposited in the nail department convenient to the tumblers. The heads are stenciled at this point by a Hooper stenciling machine.

#### BARB WIRE AND FENCING

In the barb-wire department 18 Bates machines are used, making two and four-point hog and cattle barb-wire fence in even weights and 80-rod spools. There are also two machines for making coiled spring fence wire, and several wire-hoop machines. The spools for the barb wire are made from especially seasoned and treated wood, automatic machinery doing most of the work.

Field fence is made in a building 100 x 146 ft., of steel and brick construction, adjoining the warehouses and



Fig. 7.—Two Butt Weld Tube Mills.

are polished in three 50-keg, one 40-keg, four 25-keg, one 12-keg and one 8-keg tumblers. The tumblers are driven by motors independent of the 225-hp. motor driving the nail machines. The nails are trucked from the machines and elevated by means of an Otis elevator from the nail-mill floor level to a charging platform over the nail tumblers. Sawdust for polishing the nails is stored in a steel bin with sufficient capacity to hold one month's supply. The sawdust is unloaded from cars into bins by means of a motor-driven exhauster. The polished nails to be shipped are weighed and filled into kegs. These are placed in a conveyor on the floor level and taken to a Morgan motor-driven nailing machine, from which they are automatically discharged to a second conveyor and carried to warehouses. The capacity of the factory is 50,000 kegs per month.

In this department are located barbing blocks for barbing wire used in making barbed nails, Humphrey staple machines, which make polished and galvanized staples, and Humphrey coating machines for coating nails. Electro-galvanizing and blued nails are also manufactured in this department.

#### COOPERAGE PLANT

The cooperage shop is a 40 x 60-ft. two-story brick building with a one-story addition, 40 x 100 ft., of frame and corrugated double-refined puddled-iron sheet construction. Here the wood is stored and kiln dried in a double-chamber dry kiln and made into kegs. The kegs are conveyed from the second story of the cooperage shop over

barb-wire department. There are now in operation nine machines for producing Buckeye wrapped-stay fence, two diamond mesh-fence machines and two staple lock-fence machines. The wrapped-stay and staple-lock machines are capable of making all the prevailing heights, types and spacing on the market. This department also contains six straightening and cutting machines, which will handle sizes from No. 16 up to  $\frac{3}{8}$ -in. wire in lengths up to 30 ft. A tool room is fitted out with modern motor-driven lathes, shapers, milling machines, drill presses, etc. Bale-tie machines are also under construction.

The wire-galvanizing department consists of three 30-wire galvanizing units, each having 30-reel strands; two lead-annealing furnaces, muriatic-acid fluxing bath, spelter furnace and take-up blocks of the Humphrey continuous type. The building can accommodate two more units, or a total of five.

#### WAREHOUSES

There are two warehouses in which finished material is stored. The first of these, 70 x 390 ft., is partly occupied by the barb-wire machines, the storage space being used exclusively for barbed and galvanized wire. This building is provided with a covered shipping platform running along one side, 10 ft. wide by 300 ft. long. Parallel to it is another warehouse, 85 x 480 ft., with a shipping track and platform on each side of it. Between these two buildings is a three-track yard. The two outside tracks serve for shipping tracks and the center track is on a grade. The latter is used for the storage of billet cars, the grade



allowing the cars to be dropped down by gravity to the billet-unloading crane at the billet yard mentioned above. There is shipping track capacity for 40 cars around these two warehouses.

#### Open Hearth Plant

At a recent meeting of the stockholders of the company an increase of \$5,000,000 in the capital stock was authorized. Most of this money will be used to build six

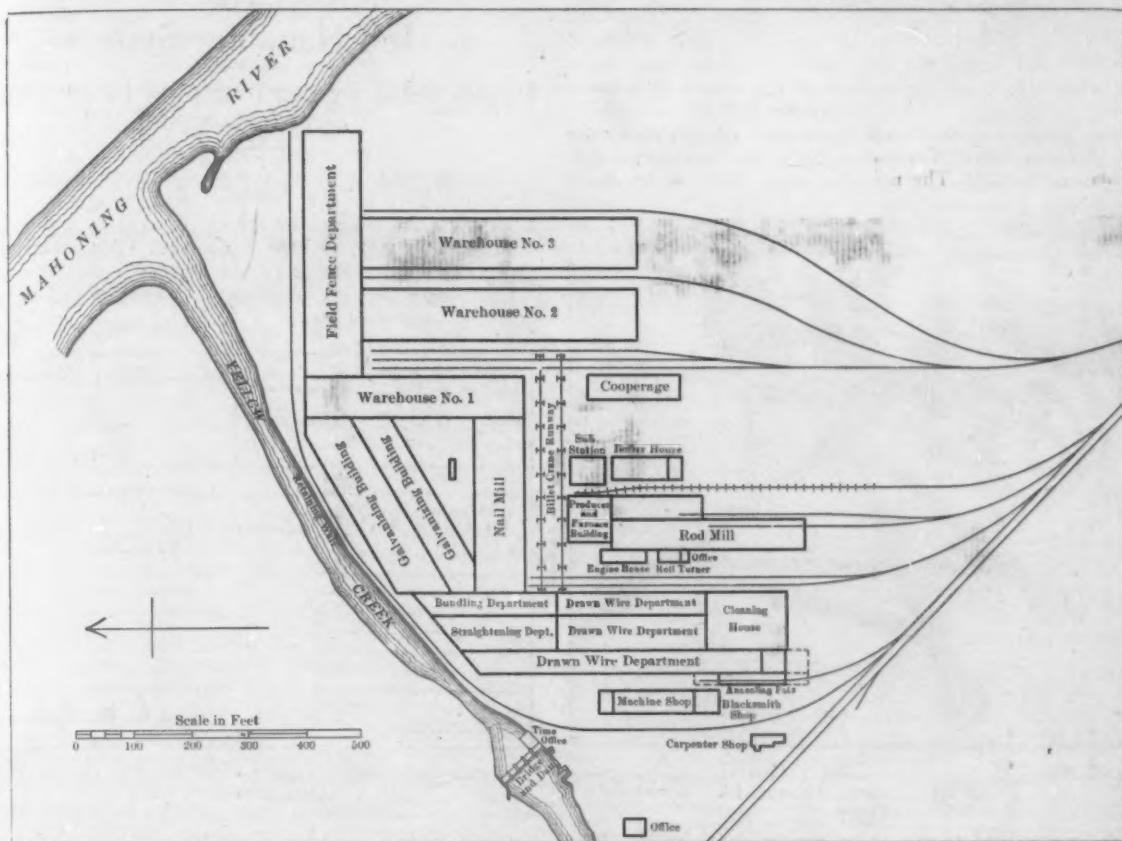


Fig. 8.—Plan of the Rod and Wire Mills at Struthers, Ohio.

#### ELECTRICAL EQUIPMENT

All the machinery in the Struthers plant except the rod mill is electrically driven. Electricity is supplied from the main plant, one-half mile away, to the substation, which contains one 300-kw. Crocker-Wheeler motor generator set, 6600-volt, 3-phase, 25-cycle, 500-r.p.m. generator, 220-volt, 3-phase, 25-cycle; seven 300-kw. Crocker-Wheeler

open-hearth furnaces with a total monthly capacity of 20,000 tons, together with a new blooming mill. New finishing mills to take care of the additional steel will also be built, but at this writing the type of these mills has not been decided upon. The location of the new open-hearth plant is shown in the plan on the accompanying Supplement, which contains also a panoramic view of the East

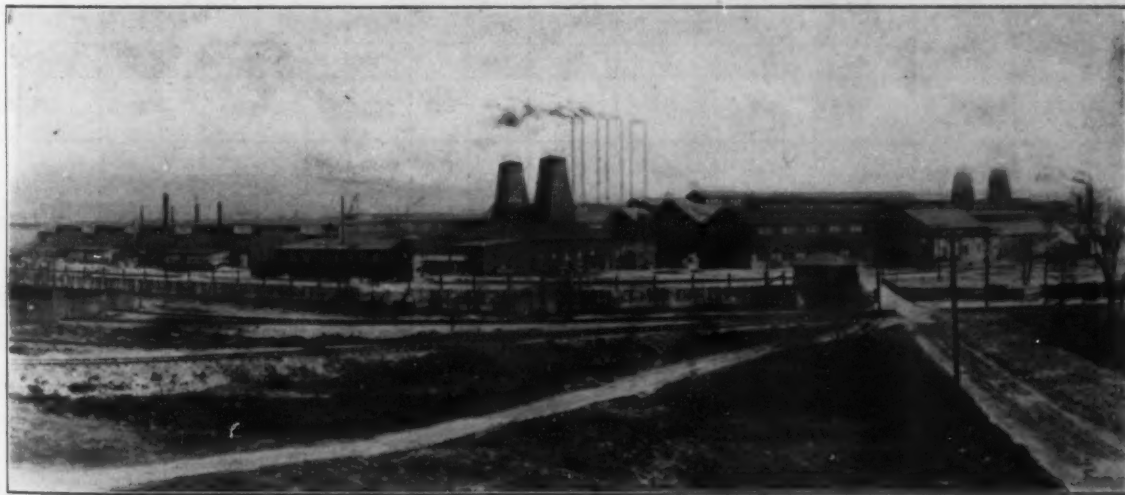


Fig. 9.—General View of the Rod and Wire Department.

water-cooled transformers, 6600 to 220 volts; one 300-kw., 220-volt generator, driven by direct-connected Skinner engine.

Water for the plant is taken from Yellow Creek, this stream having been dammed, and from the Mahoning River. A pumping station distributes the water to the various departments. There are a machine shop, forge shop and carpenter shop of ample capacity, and with facilities for taking care of repairs and building such machines as are added from time to time.

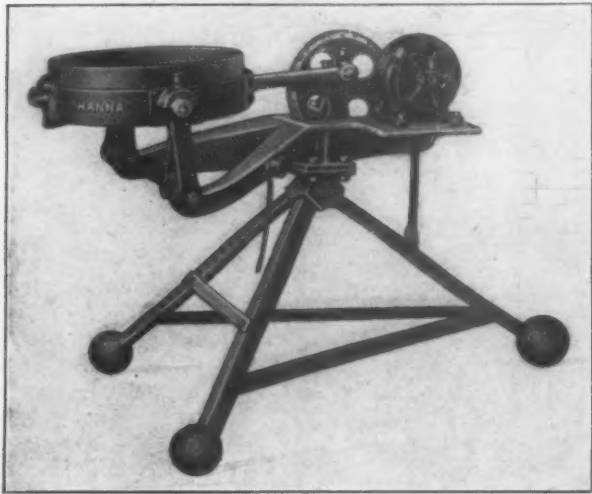
Youngstown plant. Figs. 6 and 7 are views taken at the tube mill and blooming mill, while Figs. 8 and 9 relate to the wire plant at Struthers.

The Byron Jackson Iron Works, Inc., 351 to 355 Market street, San Francisco, with works at West Berkeley, Cal., is finding a good demand for centrifugal pumps for irrigation work. The company manufactures Jackson centrifugal and turbine pumps and Dubois gold dredgers and gold dredge pumps.

Hanna Electric Riddle Oscillator

Almost exact reproduction of the action of a molder screening sand by hand is claimed as one of the special features of a motor-driven oscillator for foundry riddles recently placed on the market by the Hanna Engineering Works, 2059 Elston avenue, Chicago, Ill. This action, it is pointed out, keeps the sand under a continuous motion which tends to clear the meshes of the screen to a great extent.

The general design and dimensions of the oscillator closely follow the small pneumatic tripod shaker of this firm. The construction is such that there is no dead center, and as a result there is no danger from undue



A Motor-Driven Oscillator for Foundry Riddles Made by the Hanna Engineering Works, Chicago, Ill.

shock or overload to the 1/3-hp. motor operating it. The screen holder can accommodate the ordinary 18-in. foundry riddle and has a quick-acting clamp device to facilitate removal. The oscillator is furnished with a motor wound for any of the ordinary types of electric current and is

sand which one man can shovel into the riddle, while another feature is that the proportion of core sand to the core compound or the core oil used is increased fully 50 per cent. and a better mixture secured than is possible by hand riddling.

Job Handling System

Details of the System Employed by the Triumph Electric Company

For keeping in close touch with each particular job that goes through the different departments of its shop a simple and satisfactory system is used by the Triumph Electric Company, Oakley, Cincinnati, Ohio. One of the especially good features of the system is that it prevents the foremen of the different departments from side-tracking important work in favor of easier and less im-

Figure 1 shows a 'Schedule Card' used by the Triumph Electric Company. The card is titled 'Armature Coils' and contains fields for 'ORDER NO. 268', 'PIECES 50', 'LOT NO. 20', 'DEPT. M', 'SYM. 150', 'S.M. 151', 'DATE ISSUED 6/18/11', 'DATE RECEIVED 6/18/11', 'WILL ARRIVE ABOUT 6/22/11', 'MATERIAL STOCK Wire', 'TO BE COMPLETED 8/15/11', 'WILL COMPLETE 7/21/11', and 'DATE 8/3'. It is signed 'S. M. Johnson'.

Fig. 1.—Schedule Card Used by the Triumph Electric Company, Oakley, Cincinnati, Ohio.

portant orders without consulting the superintendent. Three forms are all that are required by the system and these are the schedule card shown in Fig. 1, the record of shop promises, Fig. 2, and the tracer employed by the production department which is illustrated in Fig. 3.

Report of Shop Promises											
Date - July 1911											
Department	Total No. of Orders finished	Total Orders finished on time		Percentage of Orders finished on time, not held up by material or otherwise	Fall Downs	Due to own Dept.		% of Fall Downs Due to -			
		No.	%			No.	%	Other Dept.	Material	Drafting Room	Eng. Dept.
A	282	244	86.52	99.64	38	1	2.63	1 2.63 Work more important	17 44.73	2 5.26	2 6.8
B	170	149	87.64	99.41	21	1	4.76	6 38.10 Work more important	3 14.28	4 19.05 Boring Mill in use	1 4.77
C	107	85	79.44	100.00	22	0	0	4 18.18 Work more important	4 18.18	4 18.18 Mistakes made by other dept.	
D	88	43	48.86	93.18	45	6	13.34	10 45.45 Work more important	2 4.14	5 11.10 Mistakes made by other dept.	
E	82	82	100.00	100.00	0	0	0	3 6.67	0	0	0
F	62	45	72.58	95.16	17	3	18.23	2 11.82 Work more important	3 18.23 Repairing Press	5 16.23 Too much work ahead of Press	
G	7	7	100.00	100.00	0	0	0	6 36.47	0	0	0
Total	798	655	82.08	98.62	143	11	7.69	41 28.74 Work more important	29 20.27 Material		
								39 27.27			

Fig. 2.—Record of Shop Promises.

shipped complete with a switch, short piece of cable and a plug ready for attaching to the lighting circuit. The motor and the gearing are protected by a housing to prevent sand from being thrown into the working parts. It is claimed for this machine that it will screen all the

As soon as the orders are received by the company a copy of each is promptly sent out from the office to the production department clerk, together with a memorandum giving the desired shipping date. This clerk immediately assembles all the necessary parts or orders those which



are not already in stock and the unfinished materials are distributed to the foremen of the various departments which are to handle any of the work under the superintendent's supervision. The schedule card shown in Fig. 1 is made out in duplicate by this clerk after an estimated date of completion is obtained from the foreman of the first department handling the work. This foreman retains the original card until his department has completed the work. As soon as the work is completed by any one department the date upon which the piece is turned over to the next department is filled in in the space opposite the word Date. In case there is any delay the reason is noted on the back of the card and it is then sent back for the insertion of a second date, as shown in Fig. 1, and for investigation by the superintendent as to the reason. When the job is entirely completed the card is returned to the production department, where it is attached to the duplicate which has been retained while the work has been making the rounds of the shop and filed under the regular order number.

At the end of each month these cards are looked over and the report on shop promises illustrated in Fig. 2 is made up, a copy going to each foreman. This report shows the percentage of orders completed on time, together with the number of orders not completed on time, and the number and percentage of falldowns due to the different shop departments, lack of material, the drafting room and the engineering department, together with any explanations that are needed. This report shows the superintendent every month just how each department stands as far as production is concerned, and it is also said to be helpful in creating good-natured rivalry among the different foremen.

The tracer kept by the production department clerk which is illustrated in Fig. 3 also forms a very useful part of the system. It is printed on sheets measuring  $9\frac{3}{4} \times 14$  in., and punched for binding. This form is partly compiled from the schedule cards and refers only to materials that are not in stock and have to be ordered. These tracers carry the same sales number as the order number on the schedule card, and if any job is delayed reference to this sheet shows at a glance whether the delay was with the stock department or elsewhere.

This system enables the office to ascertain at all times the approximate date when any particular order will be ready for shipment by referring to the schedule cards. Where any part of the raw material is not in stock a glance at the tracer sheet will show when the material is expected or when delivered to the proper shop department.

Richard Honey, an American now resident in the city of Mexico, and who has been prominently identified with the iron industry of Mexico for nearly 40 years, has made a contract with the Department of Fomento of the Mexican Government which promises the establishment of iron and steel works in that republic on quite an extensive scale. The concessionaire is to manufacture iron by the electric process and is to produce a minimum output of 1200 tons within two years after the signing of the contract. He is given the right to import free of duty all machinery and accessories needed for the establishment of the industry, buildings and electric apparatus. The duration of the concession is to be 10 years from the date of ratification of the contract by the Mexican Congress.

## The American Institute of Mining Engineers

A meeting of members of the New York section of the American Institute of Mining Engineers will be held in the assembly room of the United Engineering Societies Building, 29 West Thirty-ninth street, New York, on the evening of September 22. Charles P. Perin, consulting engineer of

Sales No. 268		"D. C." TRACER.		Shop No. _____			
Description 2-5 h.p. 110 v. 935 r.p.m. Generator		Promise 9/11		Req. Issued _____			
				Order Issued _____			
				Order Returned _____			
Lot	PART	Dept.	Purchase No.	Material Received	Issued To Shop	Promise	Finished
	Crown						
	Base						
	Front Brackets	B	2682	9/22/11	9/22/11	9/15/11	9/27/11
	Back Brackets						
	Front Pedestal Caps						
	Back Pedestal Caps						
	Brush Yokes						
	Insulate Brush Yokes						
	Brush Yoke Brackets						
	Pole Shoes						
	Field Supports						
	Front Bearings						
	Back Bearings						
	Oil Rings						
	Poles						
	Pole Tips						
	Pole End Flats						
	Connecting Poles						
	Diets						
	Back Gear						
	Flexible Joints						
	Shaft						
	Worm						
	Gears						
	Shaft						
	Worm						
	Gears						
	Commutator Poles						
	Armature						
	Shunt Field						
	Series Field						
	Comm. Pole Field						
	Rolls or Sliding Bars						
	Brush Holders						
	Brush Holder Brackets						
	Collecting Ring						
	Collecting Ring Ribs						
	Oil Ring Terminal						
	Mic. Adjustment						
	Mic. Adjust. Screws						
	Mic. Adjust. Brackets						
	Pos. Contact Board						
	Neg. Contact Board						
	Com. Bd. Terminals						
	Series Leads						
	Shunt Lead Terminals						
	Armature Leads						
	Assembly and Test						

Fig. 3.—Tracer Employed by Production Department.

the Tata Iron & Steel Company, Sakchi, Bengal, will deliver a lecture illustrated by lantern slides on "The Iron and Steel Industry of India."

The secretary of the institute has issued a notice that the adjourned annual business meeting of the society will be held at its headquarters in New York City September 20 for the purpose of giving formal notice of intention of proposed amendments to the constitution so that they may be acted upon at the annual meeting to be held on the third Tuesday of February, 1912. Among these proposed amendments is one which changes the name of the institute to "American Institute of Mining and Metallurgy."

The Electric Furnace Company is erecting a plant at Alliance, Ohio, for the purpose of testing out its electric furnace for heating bars, billets, etc., for the working of steel. It is incorporated under Ohio laws with an authorized capital stock of \$20,000. Among those who are interested are Kenneth Seaver, chief engineer Harbison-Walker Refractories Company, Pittsburgh, Pa.; G. W. Shem, chief engineer Alliance Machine Company, Alliance; C. B. Hunt, sales manager and director Buckeye Engine Company, Salem, Ohio. T. F. Bailey, patentee of the furnace, is president and general manager; H. F. Boecker, vice-president, is cashier of the Alliance Banking Company, Alliance; F. O. Humberger, Jr., Massillon, Ohio, is secretary and treasurer.

F. P. Smith & Co., Sharon Hill, Pa., manufacturers of hardware specialties, are giving particular attention at present to some new assortments of spring cotters which are put out for the automobile, hardware and agricultural trade.

## The Lagonda Automatic Cut-Off Valve

### A Device for Protecting the Boilers in Case of Accident

Using automatic cut-off valves to protect the steam line and the boiler in case of accident has been compulsory in France for a number of years and their use in this country has been recommended by various insurance organizations. These valves are designed first, to close automatically should a tube or any other part of the boiler give way, thus isolating the disabled boiler from the others or if a steam pipe should burst or a cylinder head blow out; second, to keep a boiler closed until its pressure equals that in the header, thus avoiding all accidents due to opening valves either through carelessness or incorrect steam gauges while there is a considerable difference of pressure, and third, as an added protection to a man working in a boiler when cold, since a valve of this nature prevents the possibility of turning steam into a boiler in which a man is working since the pressure in the header renders it impossible to open the valve. Recently the Lagonda automatic cut-off valve made by the Lagonda Mfg. Company, Springfield, Ohio, has been admitted to the Museum of Safety Devices which is maintained in the Engineering Societies Building, 29 West Thirty-ninth street, New York City, and up to the present time is the only one. This valve is built in two styles and a view showing the internal construction of the standard valve is given in Fig. 1, while Fig. 2 illustrates the low-down type which is intended for use on shipboard and in other locations where the headroom is limited.

This valve is of the double-acting type and works in either direction. Thus if a single tube in a boiler ruptures, or if a break occurs in the steam main between the boiler and the engine or in any part of the steam loop, all of the valves, it is emphasized, will close instantly, thus preventing the escape of any live steam. In action the valve depends upon the actual flow of steam and not upon the difference in pressures so that whenever an abnormal flow occurs in either direction the valve shuts at

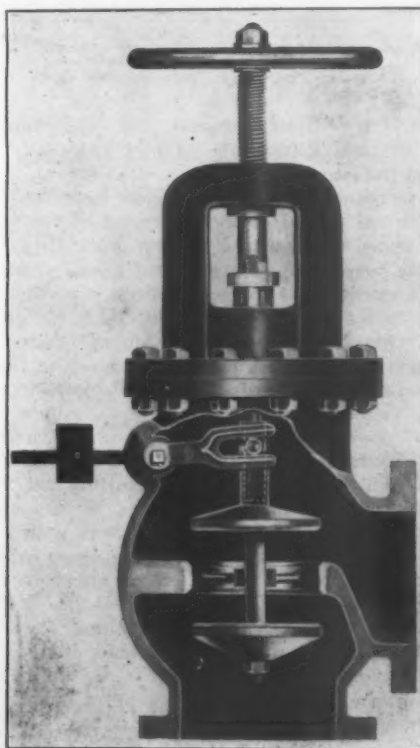


Fig. 1.—Interior View of the Automatic Cut-Off Valve Made by the Lagonda Mfg. Company, Springfield, Ohio.

once. It is designed to take the place of the ordinary stop valve and if desired can be used as such, but it should not be confused with the ordinary single-acting non-return valve. One of the special features of this valve is



Fig. 2.—Exterior View of the Low-Down Type.

that there are no internal working parts. The dash pot on the outside is designed to prevent chattering or too quick closing of the valve when sudden overloads occur. This feature is clearly brought out in Fig. 1, which is an interior view of the regular type of valve. The check disk in this valve is not attached to the valve stem which enables the valve to be used as an ordinary stop valve by screwing the stem down until it holds the disk securely on its seat.

Tests to show the reliability of the cut-off valve were made in Washington, D. C., before the Board of Supervising Engineers of the Department of Commerce and Labor. These tests showed that when an opening equivalent to a 15-16-in. outlet was made between the valve and the boiler the valve closed promptly. A quick-release valve was opened until it corresponded to an outlet of 1½ in. in diameter to show the action of the valve when a break occurred on the header side. In this case the steam pressure was reduced from 180 to 140 lb. and the rush of steam closed the valve in 2 seconds. To test the action of the valve under a sudden overload, the quick-release valve was opened as in the previous test, 30 seconds being required to perform the operation, and at the same time the pressure dropped from 180 to 190 lb. without causing the valve to close. These last two tests showed that the valve can take care of any unusual but, nevertheless, legitimate demand for steam and at the same time be sensitive enough to close quickly in case of accident.

These valves are built in a number of sizes for use with pipes ranging from 3 to 12 in. in diameter and a special style designated as the low-down type illustrated is made for use where the head room is limited as is the case on shipboard. The dash-pot and the weight provide a means for adjusting the valve to suit the special steam pressure and overload conditions of any particular installation.

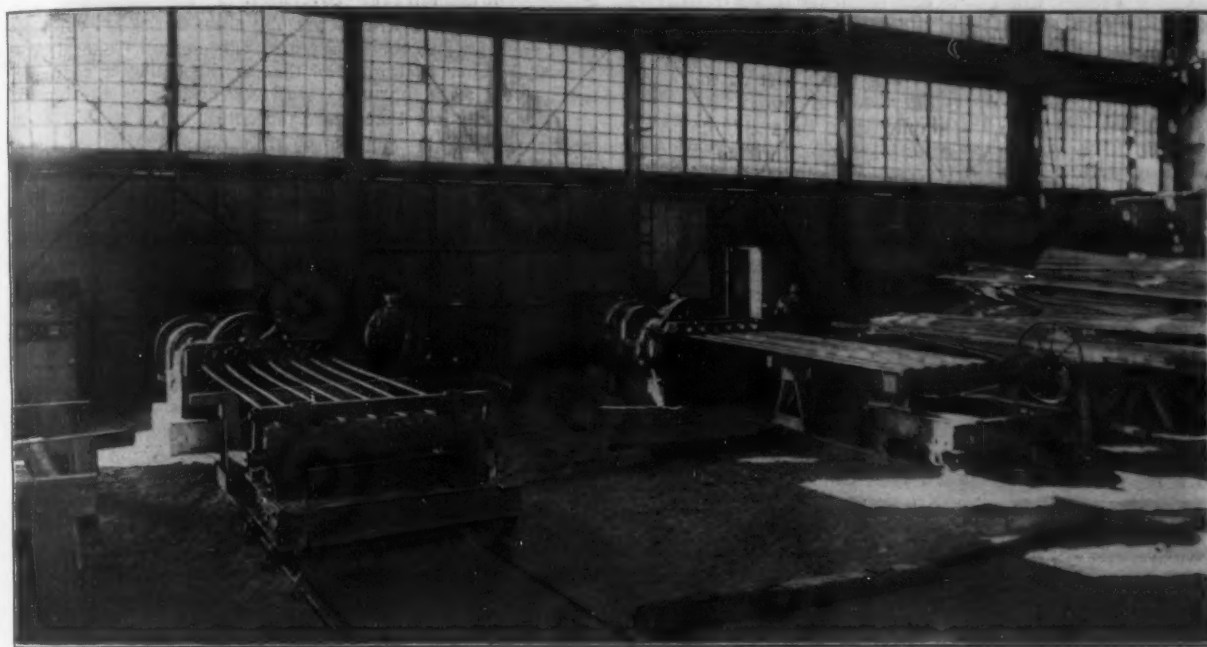
The Triumph Electric Company, Cincinnati, Ohio, intends to increase the length of its main machine shop by 300 ft., making a total length of 800 ft., and to build six ells at right angles to this. The plans for the new work have not as yet been made, and some little time may elapse before the extension is in hand. In the past year the company has developed new lines as follows: Alternating generators, of both belted and engine type, three wire generators, transformers and fractional horsepower motors. The company finds business very satisfactory. June was the biggest month in its history. The aggregate for the first six months of 1911 was 15 per cent. greater than for the corresponding period of 1910, notwithstanding the fact that the business of 1910 was 33 1-3 per cent. greater than the average of the previous 10 years.



## The Twisting of Reinforcing Bars

### Machines at the Mill of the Inland Steel Company

The Inland Steel Company, Chicago, has come to be one of the largest factors in the tonnage of reinforcing bars for concrete construction in the Western territory. Thus far one end of its continuous bar mill at Indiana Harbor, Ind., has been the only overflow capacity available outside of its Chicago Heights works. The accompanying illustration shows two of the twisting



Machines for Twisting Bars at the Mill of the Inland Steel Company, Chicago, Ill.

machines, built by the Mesta Machine Company, Pittsburgh, and installed in the continuous bar mill. So many different lengths are required in reinforcing bars that the 60-ft. pieces in which they are rolled cannot be sheared with any uniformity, the result being that the sheared ends tend to accumulate until they can be worked in. To accommodate itself to the increasing tonnage and to provide more adequate facilities for handling the stock, the Inland Steel Company will begin construction at once of an additional 100 ft. at the south end of the bar mill, providing 10,000 sq. ft. of floor space to be used exclusively for reinforcing bars.

### Molybdenum Steel from the Electric Furnace

Some experiments made on a small scale as thesis work in the Colorado School of Mines by E. T. Dittus and R. G. Bowman were described in the paper read at the meeting in Toronto of the American Electrochemical Society, September 21 to 23. The investigations were in general qualitative rather than quantitative, so it is emphasized that experiments will be necessary to determine the loss and distribution of molybdenum and also to ascertain what proportions of sulphur are removed by the ferrosilicon and the slag. The conclusions of the authors are as follows:

Molybdenum steel can be made in the electric furnace by the direct reduction of iron ore and the addition of molybdenum in the form of molybdenite  $\text{MoS}_2$ .

Molybdenum steel of low sulphur content can be produced from molybdenite by the use of ferrosilicon as a desulphurizer.

Molybdenum steel of low sulphur content can be produced from molybdenite in the form of low grade concentrates by the use of ferrosilicon as a desulphurizer.

With regard to the design of a furnace for small scale operations, the experiments indicate that: The Girod principle as used was superior to the Heroult; a tilting furnace would be more effective than a stationary furnace; the tap hole on a stationary furnace should be made short, with a steep inclination; ample provision for heating the tap hole should be made; tar does not make a satisfactory binding material for crushed magnesite.

## Root & Van Dervoort Factory Expansion

The Root & Van Dervoort Engineering Company, East Moline, Ill., is adding materially to its manufacturing capacity. The following buildings are under construction: An addition to the present foundry, 70 x 150 ft.; an assembling building, 85 x 258 ft., one story, brick construction, block floor, lantern roof, equipped with electric crane; a test and painting building, 70 x 375 ft., of which 225 ft. will be for painting and 150 ft. for testing, one story, brick

construction, with basement and floor of concrete, lantern roof design, except the north side, also equipped with electric crane.

The company doubled its output the past year and hopes that with these new buildings and the additional equipment it will be able to more than double its present production. Orders have been given for the necessary automatic screw machines and other automatic machinery as well as lathes, grinding machines, etc., to equip the machine shop fully.

This company manufactures gas and gasoline engines in the medium sizes. Besides its regular line, or what the company terms its volume governing as well as hit-and-miss line of engines, it has just brought out a new line of hit-and-miss engines which is named the Triumph line. This new line has been brought out to meet the great demand for a lighter and faster running engine of the same power as the company's older line at a cheaper price. It will be well understood from the above that the company considers its prospects for the future very bright.

An affiliated company, whose plant adjoins the engine plant, is the Moline Automobile Company. It has the same officers and managers. Its entrance in the automobile field occurred in 1904, when the manufacture of the Dreadnaught Moline was begun. Motor cars built by this company have won a remarkable number of trophies for economy and endurance runs.

William J. Linton, manufacturers' agent, 136 Liberty street, New York, is now selling agent for the Badenhansen safety water tube boiler, which is built by the New York Shipbuilding Company, Camden, N. J., J. P. Badenhansen, advisory engineer. This boiler can be furnished in capacities from 100 hp. up to 1000 hp. in single units. No cast-iron parts, hand-hole plates, gaskets, dogs, nuts or stay bolts are used in its construction. It is capable of being forced to almost any degree, one installation having been operated at 250 per cent. of normal rating for 24 hours per day for over one year without detriment. Mr. Linton reports his power equipment business of the past month as having been very good. He has just closed for one 50-kw. and one 60-kw. direct connected units and one 600-hp. cross compound condensing Corliss engine, including condenser and pumps.

## The Cost of Southern Pig Iron

Recent references in our columns to the cost of Southern pig iron, showing that the conditions in the Southern pig-iron trade are far from being satisfactory to producers, have brought out some interesting correspondence. From a gentleman whose connections are such that he is exceedingly well informed with regard to the subject, we have received the following:

"Throughout the South generally the iron makers are in distress. Conditions are particularly acute in Virginia. There prices have fallen far below the cost of production. The iron makers in the States of Alabama and Tennessee also, with only a few exceptions, are finding it impossible to make both ends meet. There has been in the past five years a great advance in freight rates on Southern iron—a full dollar in all cases. Some years ago the rate per ton from Birmingham to Cincinnati was \$2.25, as against \$3.25 today. This increase in freights, coupled with the building of many more furnaces in the North, has fearfully circumscribed and restricted the territory where Southern iron is on a really competitive basis. For example, take a town as near the Ohio River as Dayton. The choicest No. 2 Northern foundry costs the buyer there today \$14.15. On the basis of \$10.50, Birmingham, for No. 2, the Southern product would cost \$14.20 f. o. b. Dayton. There used to be enormous quantities of Southern iron sold in Pittsburgh, Cleveland and Buffalo. Now the Southern iron sold there is practically a negligible quantity. It is all very well for Congressman Underwood to boast over the Woodward Iron Company's record, but there are very few ironmasters in the South who are jubilant over either the past or the future. In fact, the record of at least seven out of ten of the Southern furnaces is a record of exhausting natural resources with no adequate return."

Another correspondent, writing on the same subject, says: "There are two very queer conditions to me at present. The first is that we hear no talk about reduction of miners' or furnace workers' wages, although it is admitted that \$10, Birmingham, for No. 2 foundry is exceedingly dangerous to fool with. The second is that there is no agitation on the part of furnace owners to secure a reduction in the freight rate on pig iron to the North. If the same rate of freight was made on Southern iron now that has prevailed heretofore when it was selling on the basis of \$10, Birmingham, for No. 2 foundry, and \$9 or less for gray forge, there would be a considerable reduction in the freight rate and we would be allowed to move our stocks North. Years ago the freight rate from Birmingham to Cincinnati was \$2.25 per ton, based on \$12 per ton for gray forge at Birmingham. The railroads are getting \$3.25 now from Birmingham to Cincinnati, and the price of gray forge is but \$9, Birmingham. One of two things must happen—either consumption must increase, and under the laws of supply and demand Southern pig iron advance, or wages and freight rates must decline, if Southern furnaces are going to be able to keep in blast."

## Customs Decisions

### Steel Rods

Thomson & Stacy, Inc., failed before the Board of United States General Appraisers to substantiate their claim for a reduction in the duty assessed by the collector on merchandise invoiced as "round bars." The articles consist of rods about  $\frac{3}{4}$  to  $\frac{1}{2}$  in. in diameter and about 13 to 18 ft. in length. Duty was assessed at the rate of 6/10 of 1 per cent a pound as "iron in rods." It was claimed that the merchandise should be granted entry as "wire rods" with a duty of only 3/10 of a cent per pound.

The testimony in the case shows that the rods are used in the manufacture of bedsteads. Judge Fischer says that the evidence, while it establishes that the rods are steel rods and not iron, does not show that they are "wire rods." He says in his decision for the board that it is evident that the article in question may be a rod and not necessarily a "wire" rod. The decision says that if it were a wire rod the fact that it was iron and not steel, or steel and not iron, would be of little importance as the provision in paragraph 134 of the present tariff

act includes iron as well as steel wire rods. The General Appraiser states that the only claim raised is that the goods are subject to duty as wire rods, and this, the decision holds, fails for lack of proof. The protest is accordingly overruled.

### Iron Drums

The board has sustained a protest filed by Robert B. Ways relating to the classification of iron drums containing permanganate of potash. The drums were assessed separately from their contents at the rate of 30 per cent ad valorem as "unusual" coverings. It was claimed by the importers that the drums are dutiable at the ad valorem rates applicable to their contents. This claim General Appraiser Fischer sustains and directs the collector to make a reliquidation in harmony with the finding of the board.

The board has taken adverse action on a protest filed by James Garcia concerning the classification of iron drums used in the transportation of linseed oil. The drums were returned for duty as "unusual" coverings, whereas the importers maintained that they are the usual containers for this class of merchandise. Judge Fischer denies the contention of the protesting firm, and holds that the drums in question are of such a substantial kind that it is possible to use them for other purposes after they have been emptied of their original contents.

Arnold, Hoffman & Co. and other importers scored a customs victory when the board handed down a ruling relative to the classification of iron drums which were assessed at the rate of 30 per cent ad valorem as "unusual" coverings. The importers set up the contention that they are the "usual" coverings for the merchandise which they contain. It was agreed that either free entry should be granted or, in lieu of that, that the coverings should be allowed to enter at the same ad valorem rates as their contents. The protest for free entry is sustained.

While the present tariff act, that of 1909, was framed with the intention of doing away with the numerous controversies arising under the Dingley act of 1897, the legislation enacted by Congress does not appear to have been successful in eliminating litigation on the point of iron drums used as containers. The Illinois Central Railroad Company, one of the many litigants, succeeded in securing free entry for such coverings used for the transportation of bleaching powder, but at the same time the board denied the company's contention for the free entry of iron drums used as containers for peanut oil. The board has sustained claims filed by several importers regarding the classification of drums used in the transportation of various chemicals on the ground that the coverings are unfit for use after their contents have been removed. It has taken unfavorable action on protests affecting drums imported by C. H. Wyman & Co., John L. Vandiver & Co., F. B. Vandegrift & Co., Read, Holliday & Co., William F. Jobbins, Inc., John H. Boden & Co., Inc., and others.

### Nut Washers

The board, after a request by the government for a rehearing in the matter of the classification under the tariff act of 1909 of so-called nut washers, has again decided the controversy in favor of the importers of automobile supplies. This action virtually settles the question during the life of the present tariff. The government alleged that the articles are dutiable at 45 per cent ad valorem under the provision in the law for "manufactures of metal." On the other hand, the Motor Equipment Company and Jacob Friedenberg maintained, as was done in the earlier test case, that the articles are taxable as "nuts" or "washers" at  $\frac{3}{4}$  of 1 cent a pound. These articles are an improved kind of washer, so arranged by a special device that it is impossible for the nut to slip off after it has been adjusted. The government sought to prove that they are commercially known as "nut locks" and not as "washers." Judge Fischer says that there is no provision in the existing tariff for "nut locks," and that as the board views the record it fails to prove the government's contention. Among the witnesses called by the government were William C. Dodd, president of the National Lock Washer Company; John B. Ress, general manager of the Positive Lock Washer Company, and Fred S. Sayre, of the same concern.

**Wanted.**—The Circulation Department of *The Iron Age* desires to secure a copy of the issue of May 22, 1902, including the Supplement sent out with that issue.



## The La Belle Iron Works

### Annual Report for Year Ended June 30, 1911

The La Belle Iron Works, Steubenville, Ohio, has issued its annual report, covering the operations of the fiscal year ended June 30, 1911. The income account makes the following showing as compared with the previous fiscal year:

	1911.	1910.
Net profits.....	\$1,424,108	\$2,167,585
Interest on bonds.....	131,955	137,895
Balance .....	\$1,292,153	\$2,029,690
Dividends .....	991,515	892,339
Surplus .....	300,638	1,137,351
Previous surplus.....	2,950,569	2,063,218
Total surplus.....	\$3,251,207	\$3,200,569
Appropriation for depreciation.....	250,000	250,000
Surplus .....	\$3,001,208	\$2,950,569

The general balance sheet, as of June 30, compares as follows:

Assets.	1911.	1910.
Property account.....	\$11,658,021	\$11,579,315
Sinking fund.....	6,500	3,500
Deferred charges.....	19,238	14,397
Inventories .....	3,492,153	3,117,452
Bills and accounts receivable.....	1,063,238	1,722,006
Cash .....	1,306,151	941,423
Total .....	\$17,545,301	\$17,378,093
Liabilities.		
Capital stock.....	\$9,915,400	\$9,915,400
Bonded debt.....	2,164,500	2,260,500
Wages, taxes and royalties accrued.....	250,186	251,897
Accounts payable.....	265,450	289,928
Accrued interest.....	16,985	18,995
Depreciation and other reserve funds.....	1,931,572	1,690,803
Surplus .....	3,001,207	2,950,570
Total .....	\$17,545,301	\$17,378,093

The report states that the company's ore properties were operated on a basis only sufficient to supply such tonnage as was required by the Steubenville furnaces, the total production for the year being 252,899 gross tons, or 36 per cent. less than for the previous year. Owing to the prevailing low price of coke, and the fact that no advantage would accrue to the company by its operation, its Fayette County coke plant was kept closed practically the whole of the year, conserving to this extent the company's coking coal deposit for future use. The demand for the company's products not being such as to permit of full operations during the greater part of the year, production in most departments shows a considerable curtailment over that of the previous year, the comparison being as follows: Pig iron, 228,425 gross tons, an increase of 9 per cent.; billets and slabs, 264,970 tons, a decrease of 24 per cent.; finished goods, 347,498 tons, a decrease of 10 per cent. The average number of workmen employed during the year was approximately 3500, the pay roll aggregating \$2,869,738, as against \$3,095,507 for the previous year. The aggregate value of the shipments for the year was \$10,378,279.00, showing a decrease, when compared with the previous year, of about 24 per cent. Not only was there a decrease in the tons shipped, but in the amount per ton realized as well.

President Isaac M. Scott adds:

The unsatisfactory business conditions referred to as existing at the time our last report was made not only continued throughout the twelve months just past but became more pronounced as the year advanced. Not only was there a less active demand for all kinds of steel articles, but the average price per ton realized shows a very material decrease when compared with the previous year's results. Therefore, the company was confronted with a slack market and lower prices, enjoying no compensating advantages in the way of lower labor rates.

A large part of the falling off in demand can be attributed to the slow condition of the car building trade, brought about by the disinclination on the part of the transportation companies of the country to buy much-needed equipment; and as a very considerable tonnage of the company's production has heretofore gone into this channel, the loss of the business referred to left a shortage which it was impossible to make up through other sources.

It was the aim of the company to hold, so far as possible, such trade as rightfully belonged to it, and, all things considered, it would appear that this was accomplished, but inasmuch as there was not sufficient tonnage

to go round, this company, as well as others engaged in the same line of business, was compelled to submit to a curtailment of operations.

Owing to the fact that so many things have happened, and are happening, of a nature tending to disturb the purchaser, it is difficult to form an intelligent opinion as to what might be expected in the near future, or when buying will again be resumed on what may be termed a normal basis. Underlying conditions still remain sound, and sooner or later the transportation companies must come into the market as buyers on a large scale, but, until this comes about, no real improvement in the steel business can reasonably be expected.

### A Slocomb Tool Store in New York

Dealers in and users of small fine tools will be interested to know that the J. T. Slocomb Company, Providence, R. I., has established a store in New York City. This store is located at 126 Chambers street, and A. Z. Boyd is the manager. Mr. Boyd has a wide acquaintance with the hardware dealers in that vicinity inasmuch as he represents a number of well-known tool manufacturers.

The J. T. Slocomb Company has been manufacturing for a number of years a very superior line of small tools. Its micrometers are of a style of their own, having a flat frame and varying from the general pattern by having the decimal equivalent in raised letters instead of stamped into the frame. The general line of these micrometers is of the I-beam construction and black enameled. The black enamel not only gives them a handsome appearance but also serves as a non-conductor of heat which, of course, has a tendency in the use of such tools as these to make the micrometer measurements more uniform when having them in the hands quite constantly. All sizes to 6 in. inclusive are drop-forged from high grade bar steel and these are solid frames. The larger sizes are made from steel castings and these frames have holes through them, which helps considerably in their use, making a convenient way of holding them but being more attractive because of the lightness of the tool itself. The tool is made in all sizes to 24 in. inclusive for outside dimensions.

The company also manufactures a screw-thread micrometer, a comparative screw-thread micrometer, a micrometer for measuring flutes of taps or drills, tube micrometers, micrometer heads and quick-acting micrometers. It also takes these different sizes and makes them up into sets which are very useful in factories. It further manufactures reference discs, end measures, inside micrometers, and height and depth gauges. One of the most important items which it makes is the line of combined center drills. The Slocomb Company was the first to put these on the market as a commercial product and it is enjoying an excellent business in them, due to the fact that a great deal of attention has been paid to making a tool which would give an exceedingly large amount of service.

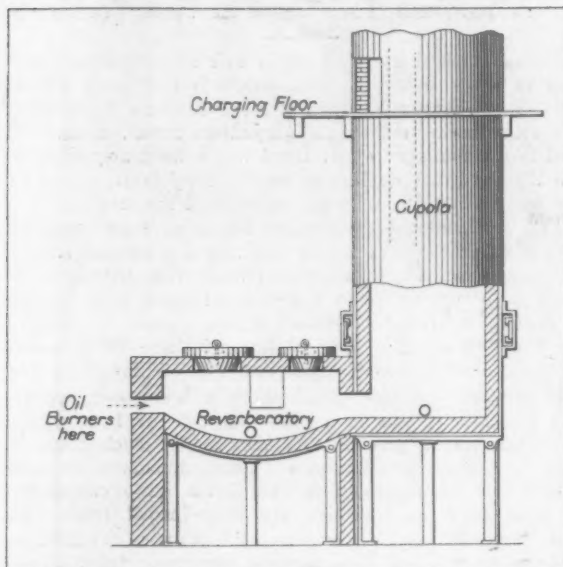
The Slocomb Company has lately done considerable to improve the attractiveness of its tools and felt that there was an opportunity to take care of the trade which it enjoys in New York City by having a store from which the dealers can draw to advantage. A catalogue is issued by the company covering the line of tools made.

**The Brown-Ketcham Iron Works Failure.**—More light has been thrown on the cause of the failure of the Brown-Ketcham Iron Works, Indianapolis, Ind. A former paymaster has been arrested, charged with embezzlement, has made confession, and the shortage is placed by the receiver, Frank B. Salmaker, at something over \$10,000. It will be recalled that a former auditor of the company was arrested some time ago, also charged with embezzlement, the amount being placed at \$60,000. The paymaster's method was the old one of padding the payroll. A peculiar feature of the case is that the company's books were examined regularly by a Chicago auditing company. While further examination of the affairs of the company is being made the works are closed. The plant is one of the best-equipped in the country, and whatever may be the outcome of the present trouble, it is believed that there will be a purchase or a reorganization that will result in the continuation of the business.

## Cupola and Air Furnace Combined

### Utilizing Borings and Turnings in Melting Iron

A combination of the reverberatory or horizontal air furnace and the ordinary vertical cupola is in use at the foundry of the Holland-Domschke Foundry Company, Norman avenue and Monitor street, Brooklyn, N. Y., where among other things what are known as unit window sash weights are manufactured. The combination has been patented by Timothy Holland, president of the Holland-Domschke Company and founder of the Holland Radiator



A Combined Air Furnace and Cupola Patented by Timothy Holland, Brooklyn, N. Y.

Company, now a part of the American Radiator Company. While the activities of the company are directed to a considerable extent to the production of the unit window weight, it is the intention to install the combination Holland cupola as widely as may be possible throughout the country. Incidentally it may be mentioned that the sash weight is one made in a few sizes, so that any desired weight may be obtained by combination of two or three sizes, minimizing the stock which the dealer in such supplies needs to maintain.

The accompanying sketch has been prepared to outline the arrangement and mode of operation of the Holland cupola. As used at the Holland-Domschke plant, the vertical cupola is charged in the usual way and the iron may be drawn from the cupola in part, leaving the remainder to flow into the reverberatory or air furnace. Oil fuel is used in the latter and of course a close degree of control may be had over the oil-burning flame in the heating and purification of molten metal in the reverberatory. Into the molten mass in the reverberatory the finely divided particles of metal, such as filings, borings and turnings are added. When the attempt is made to utilize them in the vertical cupola, the metal granules are of course carried away by the blast or to a large extent quickly oxidized.

The heated gases from the reverberatory are conducted to the cupola, as indicated, so that a maximum utilization of the heat generated is regarded as accomplished with a resultant increase in melting capacity, as the plant in Brooklyn has shown. It has also been found that the use of the fine steel scrap has produced a soft steel from the reverberatory. The slag from the cupola passes into the reverberatory on top of the molten iron, and the purifying quality of the floating slag is regarded as a highly satisfactory feature of the cupola operation, while incidentally it is kept in a liquid state, facilitating its removal.

When all the metal from the cupola is drawn through the reverberatory furnace, it is emphasized that a higher grade product will be obtainable than would otherwise be the case, and this procedure is intended to be the normal operation. Arrangements can be made for using other forms of fuel than oil for the reverberatory furnace and the blast can be preheated slightly by locating the air

pipes in close enough proximity to the furnace to absorb heat of convection and radiation from the furnace. It is claimed also that owing to the economy of heat and the control of combustion and the fact that supplementary purification can be obtained in the reverberatory, coal and gas-house coke can be employed in the cupola. Emphasis is also placed on the large reservoir for hot metal created by the combined floor of the cupola and the reverberatory furnace, this fact minimizing the danger of overflow and as already stated, allowing for satisfactory control of the slag.

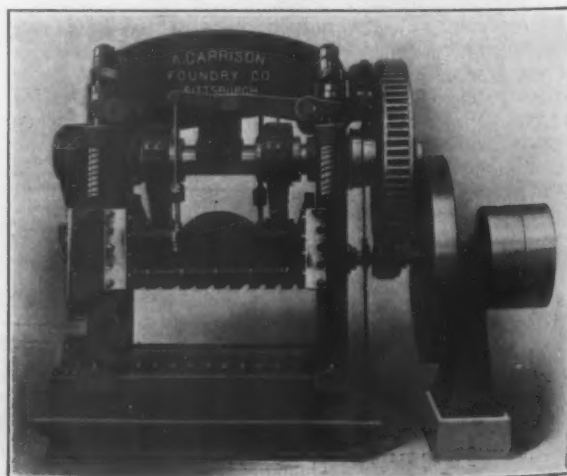
The charging of the fine material, of course, takes place at the top of the reverberatory. Downward application of the heat and blast is, of course, counted on to bring the small particles into a mass and protect them from the oxidizing action of the blast.

The long-time identification of Mr. Holland with the founding and melting of iron lends the proposition more than ordinary interest. Aside from the opportunity of turning out iron of high grade, it is felt that the special value of the furnace lies in its accepting the low-cost material which borings and turnings constitute and turning out even pig iron at a profitable price, not to mention the direct conversion of the cupola product into commercial shapes.

## Double-Crank Forging Press

Recently the A. Garrison Foundry Company, Pittsburgh, Pa., has completed and shipped to England a 110-ton double-crank, spring-balanced forging press that possesses a number of new features. The machine is adapted for a wide line of forging work, including the forming of hammer heads, pick eyes, hatchets and the general line of forgings handled by makers of mining supplies, agricultural implements, etc., although in the accompanying engraving it is shown equipped with a special set of die holders. One of the special features of the press is an entirely new design of counterbalance. The strains to which the housings are subjected are taken by through bolts and the caps are cast in one piece, an arrangement which facilitates the easy removal of the crankshaft. When presses of this character are equipped with dies the moving parts are comparatively heavy, and since the machines are speeded up as much as possible when handling piece work the cross head must of necessity be provided with a counterbalance.

Adjustable rods connect the cross head to two levers, one of which is shown extending across the press above the shaft in the accompanying engraving. Each of these



A 110-Ton Spring Balanced Forging Press Built by the A. Garrison Foundry Company, Pittsburgh, Pa.

levers is keyed to a short shaft, running through the cap, and the end of the shaft to which the rear lever is connected is shown at the left of the engraving, while the shaft to which the front lever is connected is clearly visible. Each of these levers has an extension straddling a rod by which a heavy coil spring is compressed as the crosshead descends. Four of these springs are used in all, two being attached to each housing. One lever controls the springs in each housing operating the one on the



opposite face through an extension of the short cross shaft already mentioned, as illustrated on the left housing. The design of these springs is such that when the cross head is at rest at the top of its stroke they are fully extended and consequently are subjected to comparatively little tension. When the automatic steel crab clutch is thrown in the cross head and its attached parts alone are started instead of both the cross head and an equally heavy counterbalance, which is the usual method. In this way out the blow upon the clutch at starting is greatly reduced, with a consequent increase in the life of the clutch and the gears. Another feature of this arrangement is that it is not necessary to use a brake.

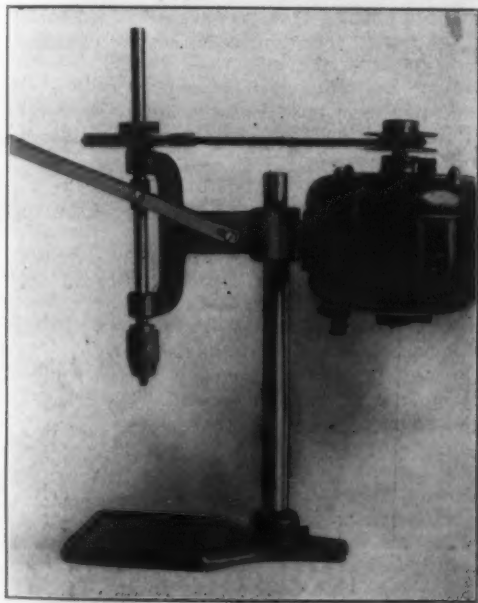
The following table gives the principal dimensions and specifications of the press.

Distance between housings, in.....	54
Maximum distance between bed and crosshead, in.....	27½
Stroke, in.....	6
Pressure exerted, tons.....	110
Approximate weight of press, lb.....	31,000

This press can be supplied either with or without an outside trimming shear or auxiliary press and can be fitted with a friction clutch placed on the pinion shaft instead of the mechanism illustrated.

### Motor-Driven Bench Drill.

A tool designed to meet the demand from light metal workers, model makers and amateurs for a bench-drilling machine capable of taking ¼-in. and smaller drills, illustrated herewith, has been built by the Willey Machine Company, Jeffersonville, Ind. The spindle has a travel of



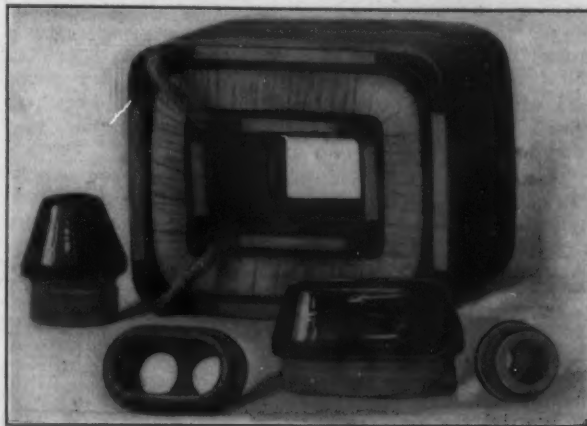
Motor-Driven Bench Drill Built by the Willey Machine Company, Jeffersonville, Ind.

3 in. and the sliding head a movement of 7 in. on the column. The speed of the spindle is 1000 r.p.m. and the motor capacity is 1/20 hp., furnished for direct or alternating current. The weight of the machine is 30 lb. The maximum size of hole drilled by this tool is approximately ¼ in.

The next annual meeting of the Society of Automobile Engineers will be held in New York City on January 18, 19 and 20, 1912, during the Commercial Vehicle Division of the Automobile Show at Madison Square Garden. Papers of unusual interest will be presented and discussed as well as reports of the standards committees, and officers for the ensuing year will be elected. A trip of the members of the society will be made to Europe this fall, the party leaving this side of the water for England about November 1. The first few days in England will be spent in examining the exhibits of the automobile show which will then be in progress at Olympia, London. The visiting engineers will be entertained by the Institution of Automobile Engineers, which is the corresponding English society. An interesting programme is being arranged.

### Improved Westinghouse Transformer

At the time the type S transformer was placed on the market about three years ago by the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa., it was thought that the last word in the design of single-phase distributing transformers had been spoken. The improvements made in existing design at that time consisted principally of an entirely new shell type of magnetic circuit in which a low



The New Type S Transformer Built by the Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa.

magnetic reluctance was obtained without increasing the mean length of a turn of the coil winding. This improvement enabled silicon steel to be employed for the magnetic circuit and resulted in increased efficiency, better regulation and a reduction in the amount of current employed for excitation.

Recently, however, this type of transformer has been brought to a higher state of development and several marked changes have been made. These have been along the line of improved material and better mechanical design rather than any improvement in the electrical construction. One of the features receiving attention was the insulation, as the life of a transformer largely depends upon this point. The insulating materials now employed, it is emphasized, are of better quality both electrically and mechanically considered, with the result that a further increase in the efficiency and a reduction in the amount of exciting current has been secured. Formerly the 7½-kva. type S transformer had an iron loss of 62 watts and a copper loss of 125 watts and these figures have now been reduced to 57 and 110 watts respectively. The exciting current has been reduced ½ per cent. and the regulation improved. A very uniform temperature is maintained throughout the entire transformer and under normal conditions the temperature rise does not exceed 50 deg.

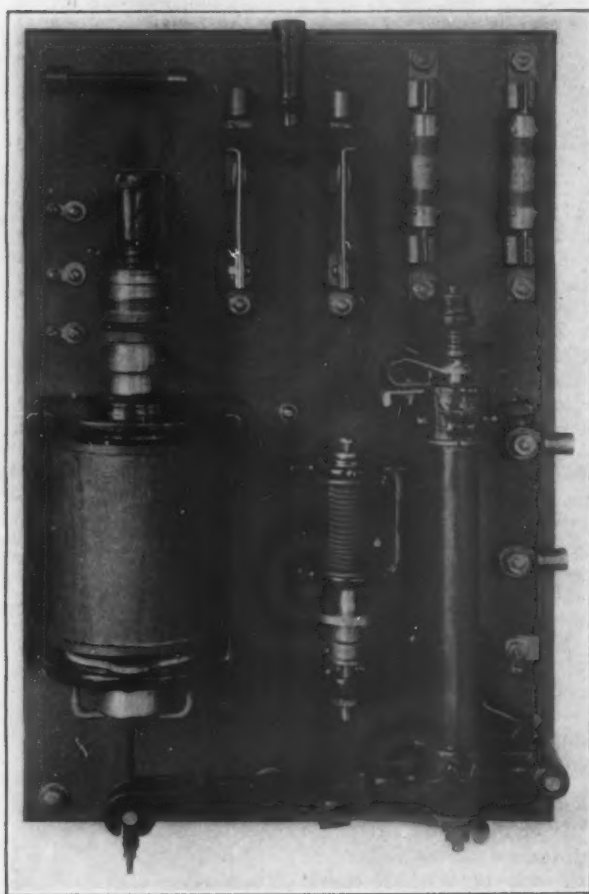
In conjunction with the insulation improvement the high-tension coils have been subdivided still more to reduce the voltage between adjacent layers of the windings as well as between coils and relieve the strain on the insulation. To prevent grounding to the case as a result of the collection of dust between the bushing and the case and to prevent siphoning of the cooling oil from the case, slight changes have been made in the terminal bushings, one and two-hole bushings being illustrated in the lower part of the accompanying engraving. The transformer leads consist of very flexible weatherproof cable which meets the rigid new requirements of the National Board of Fire Underwriters, the wires being insulated with rubber of a grade that would deteriorate very slowly if exposed to the weather, while as a further protection a braid covering is added.

The International Oxygen Company has removed its New York headquarters from 78 Nassau street to 115 Broadway, where increased facilities have been secured for transacting its steadily growing business. The new location is especially well fitted for the company's needs and easy of access for parties coming into New York City who may desire to investigate the methods of its system of oxygen and hydrogen manufacture for commercial purposes. The success of the system, since its introduction into this country a few months ago, would indicate a continued increase in the company's business.

## Allen-Bradley Motor Starters

To protect motors from the bad effects of accelerating too rapidly apparatus has been developed by the Allen-Bradley Company, Milwaukee, Wis., to prevent an excessive inrush of current through the armature. This new line of direct-current electric motor starters is designed for automatically starting shunt, series or compound motors, and is especially adapted for starting motors under a heavy load. These starters are built in sizes ranging from 1 to 150 hp., and for use on direct-current circuits where the voltage is either 110, 220 or 550 volts. One of the special applications of the starters is for pump work where they are used in connection with float switches or with air compressors or any similar service where the motor operates between two fixed limits.

The motor is started by simply closing the line switch and the starter will automatically accelerate the motor and its load and bring them up to full speed. The operator is not called upon to exercise either skill or judgment,



The Type Z 20-Hp. Automatic Motor Starter Made by the Allen-Bradley Company, Milwaukee, Wis.

even though there is a very heavy load upon the motor when it is started. The device employs the Allen-Bradley carbon compression resistance which was illustrated in *The Iron Age*, September 22, 1910. The resistance is secured through the imperfect contact between the surface of prepared graphite disks, which are stacked within an insulated metal tube. These disks are constantly in more or less intimate contact with one another and the more perfect the contact the lower is the resistance, while by varying the pressure applied to the column of disks it is possible to adjust the resistance throughout a wide range. The insulated steel tube containing these disks has the necessary terminals and plungers for transmitting the pressure to the disk. These disks, it is pointed out, are well adapted for this class of service, since they will not crush or break, are not affected by any temperature changes that they have to encounter, cannot fuse into a solid mass, will not corrode and do not deteriorate in service.

In operation when the main switch is closed current flows through the fuses, the resistance unit, the current relay and the motor armature. Simultaneously with the

closing of the main switch the solenoid circuit which is connected directly across the line and consumes only a small fraction of ampere is closed, and the plunger of the solenoid is drawn up. This subjects the disks of the resistance unit to pressure and increases the current in the motor circuit to the predetermined value at which the current relay is set. When this point is reached the current relay operates and opens the solenoid circuit, which permits the plunger to drop back slightly. This action increases the resistance in the motor circuit by decreasing the pressure on the disks of the resistance unit, and this increase in the resistance of the circuit lowers the current enough to permit the relay to close again. As the motor accelerates this operation is repeated, and each time the plunger is drawn a little further into the solenoid until the short-circuiting contacts on the top are forced together. This short circuits the current relay and the resistance unit, rendering them inoperative and completing the operation of starting the motor.

It will be noticed that in starting the motor with a device of this character the current is always kept down to a certain predetermined value which it is emphasized eliminates any possibility of the motor becoming overloaded by too rapid starting. The current relay is calibrated in amperes, and may be set to suit existing conditions. One of the special features of this device is the absence of any face plates, sliding contacts or dash pots with the accompanying trouble and expense for renewals. In this device, too, it is pointed out that all delicate adjustable parts to regulate the acceleration of the motor have been eliminated, the time element in starting being controlled automatically and directly by the load.

These starters can be furnished without the line switch, which enables it to be placed in the most convenient location to meet the requirements of any special case, or if desired, the main line switch shown in the accompanying engraving can be replaced with a solenoid switch operated by a push button. McCoy & Brandt, 410 House Building, Pittsburgh, Pa., are the local agents for Pittsburgh and vicinity.

## Important Westinghouse Electric Contracts

The Westinghouse Electric & Mfg. Company, East Pittsburgh, Pa., has secured from the Bureau of Yards & Docks, Navy Department, a contract for furnishing and installing a complete equipment consisting of motors and control apparatus for two large electrically operated pumps, for dry dock No. 2, at the United States Navy Yard, Norfolk, Va. This equipment is to replace engine-driven pumps installed some years ago with a view to making the operation of pumping much more economical. There will be two centrifugal pumps, each having a discharge opening of 42 in. in diameter and each driven by a Westinghouse 300-hp., type HF induction motor. There will also be one smaller pump, having a 15-in. discharge and driven by a 65-hp., type CCL induction motor, and in addition a small bilge pump with a 3-hp. motor. The pumps are being built by R. D. Wood & Co., Philadelphia.

The United States Reclamation Service has recently ordered from this company for installation on the Boise project, Idaho, three 625-kva., 22,000-volt, three-phase, air-blast type transformers. The government has installed on this project a hydroelectric power plant for furnishing energy to motor-driven pumps used for irrigating purposes. As the irrigation season occupies only the summer months, the plant will be kept in part operation during the winter for the purpose of supplying light to farmers and to the small towns on the project.

The company also received a contract recently from the United States Quartermaster's Department for furnishing the necessary transformers, wattmeters and switchboards for the army post located at Fort Bliss, Texas, and at the Angel Island recruit depot near San Francisco. The post is to have an electric lighting system installed, energy being purchased from the local electric power company. The company has further recently furnished two 75-kw., direct-current, engine-type generators for installation in the McKinley Manual Training School at Washington, D. C. This school is under the direction of the commissioners of the District of Columbia. The order represents an addition to the plant already installed in the school which consists of a Washington direct-current generator.



## Judicial Decisions of Interest to Manufacturers

ABSTRACTED BY A. L. H. STREET

**Risk Assumed by Employee.**—An employee injured by angle bars falling from a truck while he was assisting in moving it assumed the risk of the bars falling on account of the failure of the employer to provide standards on the truck, he having as full opportunity as anyone to know whether the bars were piled too high to be safely hauled, though the foreman ordered plaintiff and his fellow employees to pile on more bars after they thought the truck had been sufficiently loaded. (West Virginia Supreme Court of Appeals, *Chandler vs. American Car & Foundry Company*, 71 Southeastern Reporter 387.)

**Duty to Warn Employee Against Dangers.**—An employer must warn a workman against concealed dangers, especially where the latter is inexperienced. (United States Circuit Court of Appeals, Second Circuit, *Zulkowski vs. American Manufacturing Company*, 185 Federal Reporter, 42.) The employer must not also warn against dangers, but must instruct as to how they can be avoided. (Pennsylvania Supreme Court, *Kearns vs. Carnegie Steel Company*, 79 Atlantic Reporter, 575.)

**Duty to Provide Safe Place to Work for Employees.**—A foundry company engaged to erect an appliance for a railroad company is not relieved from duty to an employee to use ordinary care to provide a safe place to work for him because it has no control over the premises. (Missouri Supreme Court, *Clark vs. Union Iron & Foundry Company*, 137 Southwestern Reporter, 577.)

**Liability for Injury to Machinist.**—A machinist cannot recover for injury received through a piece flying from the head of a chisel which he was using, where he selected it from a number reasonably safe and knew that he could get safe ones on application. (Texas Court of Civil Appeals, *Pope vs. Railway Company*, 135 Southwestern Reporter, 1066.)

**Risks Not Assumed by Employee.**—An employee does not assume an extraordinary risk of injury arising from the use of a machine, such as a lathe, unless he remains at work after comprehending the danger. (Connecticut Supreme Court of Errors, *Baer vs. Baird Machine Company*, 79 Atlantic Reporter, 673.)

**Liability for Injury to Foundry Employee.**—A foundry company is not liable for injury to an employee caused by a fellow employee throwing molten metal on wet sand and thus creating an explosion; the sand having been dampened by rain leaking through a roof. (Alabama Supreme Court, *Jones vs. Union Foundry Company*, 55 Southern Reporter, 153.)

**Liability for Injury to Bridge Construction Employee.**—A bridge construction employee ordered to go upon a partly suspended section to release a foul, and injured through the section falling into place because not held by the cable, has the right to assume that the cable was taut or that he would be notified to the contrary. (New York Supreme Court, Second Appellate Division, *McGlynn vs. Pennsylvania Steel Company*, 129 New York Supplement, 45.)

**Liability for Injury to Minor Employed in Violation of Statute.**—One employing a boy under sixteen years of age in operating a punch press, in violation of the Illinois law, is liable for injury sustained by him, though he misrepresented his age in applying for employment. The law is not unconstitutional as placing the age limit too high. (Illinois Supreme Court, *Beauchamp vs. Sturges & Burn Manufacturing Company*, 95 Northeastern Reporter, 204.)

**Liability for Injury to Laborer in Boiler.**—A laborer injured by boiling water flowing into a boiler which he was engaged in cleaning can recover, where he was not informed of a connection with another boiler and no steps were taken to prevent interference with a valve controlling the flow. (Indiana Appellate Court, *Parsell vs. Fort Wayne Iron & Steel Company*, 94 Northeastern Reporter, 770.)

**Duty to Guard Revolving Shafts.**—An employer is negligent in failing to guard a revolving shaft, if employees, in doing their work, are apt to come in contact with it, and if it is practicable and customary to guard in such circumstances. (Maryland Court of Appeals, *Dettering vs. Levy*, 79 Atlantic Reporter, 476.)

**Rights of Buyer on Breach of Warranty.**—Warranty that a machine sold is of good material and first-

class workmanship is independent of further provision that for one year the seller will make good, particularly at its expense, all breakage not caused by ordinary wear or accident, misuse, or neglect; and therefore, recovery can be had on the warranty without proof that the seller was requested to make breakage good. The measure of general damages for breach of the warranty is the difference in the market value between the article as it was, and as it should have been, at the time of delivery. Special damages can be recovered only when it is clear that they were fairly within the contemplation of the parties when the contract was made, and when their amount can be ascertained with reasonable certainty. A buyer of an engine under warranty must use ordinary diligence to minimize special damages resulting from a breach of the warranty, and cannot recover damages which he could have prevented. (Wisconsin Supreme Court, *Hammond vs. Sandwich Mfg. Company*, 131 Northwestern Reporter, 1907.)

**Liability for Delaying Repair of Machinery.**—A manufacturer, who under warranty made in selling a gasoline marine engine, agrees to repair it within a certain time, and is informed that the boat from which it has been taken is urgently needed, is liable for damages resulting from delaying the repairs without just cause. (Louisiana Supreme Court, *Christie & Lowe vs. Pennsylvania Iron Works Company*, 54 Southern Reporter, 742.)

**Liability of Seller for Defects in Machinery Not Warranted.**—A buyer of machinery not warranted by the seller cannot defeat liability on a note given for the purchase price a month after the buyer took possession, on the ground that the machinery was defective. (Arkansas Supreme Court, *Dover vs. Spencer Lumber Company*, 138 Southwestern Reporter, 985.)

**Liability Incurred in Shipping Goods for Another.**—Where a seller of goods agrees that, in consideration of the purchase and reimbursement of expenses he will receive, care for and ship to the buyer goods bought elsewhere by the latter, he must use ordinary care in handling and shipping such goods. In law, he becomes a bailee for hire and not a gratuitous bailee. (Colorado Supreme Court, *Michigan Stove Company, vs. Pueblo Hardware Company*, 116 Pacific Reporter, 340.)

**Right to Repudiate Contract.**—Unless one has been induced to enter a written contract through fraud, undue influence, force or threats, he cannot avoid his obligations under it on the ground that he did not intend to agree to the provisions. (Rhode Island Supreme Court, *J. Weil & Company vs. Quidnick Mfg. Company*, 80 Atlantic Reporter, 447.)

**Damages Recoverable from Carrier for Delay in Transportation.**—An express company which has delayed delivery of part of a machine is not liable for profits lost to the shipper under contracts to manufacture articles on the machine, in the absence of notice to the company of the necessity for immediate delivery. (New York Supreme Court, Appellate Term, *Goodfield vs. Platt*, 130 New York Supplement, 180.)

**Effect of Fire Policy Provision for Adjustment of Loss.**—A clause in a fire policy providing that on disagreement as to the amount of loss the same should be ascertained by two competent and disinterested appraisers, insurer and insured, each selecting one, is an agreement for an appraisal, and not an arbitration, subject to the strict rules governing arbitration and award. There being no requirement for notice nor necessity for witnesses, an appraisal under such clause is not invalid because the appraisers met without notice to the company, while insured's officers were present and pointed out the damaged property, where there is no evidence of undue influence or bad faith, and the appraisers made their valuation on their own knowledge. (United States Circuit Court of Appeals, Third Circuit, *American Steel Company vs. German-American Fire Insurance Company*, 187 Federal Reporter, 730.)

**Personal Liability of Corporate Officers on Contracts.**—A corporation's officer is not personally liable on a contract shown on its face to have been made for the corporation, merely because he signed it in his individual name instead of as an officer. (New York Supreme Court, Appellate Term, *J. & E. Homan Company vs. Payne*, 127 New York Supplement, 418.)

**Scope of Authority of Agent to Sell.**—In the absence of provision to the contrary an agent authorized to sell is authorized to sell for cash only. (Maryland Court of Appeals, *Jones vs. Ortel*, 78 Atlantic Reporter 1030.)

## New Tools and Appliances

*This is essentially a news department for which information is invited.*

**Boring and Turning Machine for Cocks.**—Beaman & Smith, Providence, R. I., have recently completed a special machine for boring and turning cocks which will be used in the shops of the National Transit Company, Oil City, Pa. The pieces handled by the machine are about 3 in. in diameter at the large end and  $6\frac{1}{4}$  in. deep. The body is first threaded with an external thread at the lower end which fits over a threaded end on the hollow spindle. The boring tool does not rotate, and is carried in a traversing head on diagonal guides which are set to the proper taper. Each spindle is driven independently and can be stopped at any time by throwing the lever controlling its clutch. The boring bar feed can also be thrown out of engagement at any point. The plugs are turned on the opposite side of the machine. They are first centered in the usual way and the end of the spindle has a center which centers the large end of the plug, the small end being centered in a sort of vertical tailstock. The plug is driven by a washer fitting loosely the square on the large end and having lugs that engage slots on the spindle end. The tool post is of the turret type, and carries roughing and finishing tools. The output of this machine is from 70 to 80 bodies and finished plugs per day.

**A Machine Vise.**—A new machine vise possessing the advantage of ability to accommodate a great variety of work has been placed on the market by Schuchardt & Schütte, West Street Building, New York City. The two individual members, which can be separated as far as the work demands, consist of a base clamped to the machine platen, having a jaw mounted upon it which works in an inclined slide. This jaw is actuated by a double screw which is of two different diameters. That of the upper part of the screw is large and fits the thread cut in the jaw, while the lower part of the screw is smaller than the upper and is cut so as to have a thread going in the opposite direction to that of the upper part to give quick action. This screw works in a nut in the body of the member. In addition to clamping the work the sliding jaws by advancing on an incline force it down to a seat on the parallels or the work table.

**Quick-Acting Jig Clamp and Pipe Vise.**—Two recent products of the St. Louis Sales Company, St. Louis, Mo., are a quick-acting jig clamp to hold the work while drilling and a quick-action pipe vise designed especially for repetition work. The clamp is adapted for use in connection with various types of machine tools and the base is bolted to the bed plate, pressure being applied and released by a lever at the side. The pipe vise which is designed for pipe up to 2-in. internal diameter is operated by an upward movement of a lever at the side.

**Circular Heater.**—The Improved Appliance Company, 456 Kent avenue, Brooklyn, N. Y., has recently brought out a piece of apparatus which, while designed primarily as a heater for automobile tires, can also be used in connection with the setting of built-up gear rims and other similar work. The appliance can be used for all classes of work where the diameter does not exceed 42 in. and the width 14 in., adjustments for varying the positions of the different parts being furnished. A new type of burner is used in the heater which is said to be proof against back firing or blowing out.

**Spline Miller.**—Recently the Berghausen Machine Company, Cincinnati, Ohio, has brought out a high and low-speed spline miller. The jaws are independent of one another, closing and opening by right and left-handed screws which permit work to be keywayed where the diameter is not the same throughout. The work is placed in the jaws and after the cutter has been placed in position the head is lowered by a screw, the handle of which has a micrometer dial controlling the depth of the cut. An automatic stopping device consisting of a rod directly under the jaw controls the length of the cut. For rounding out the ends of the keyway a vertical end mill is employed which is lowered to the required depth and kept in position by clamping the upper sleeve of the spline. The feed employed for the horizontal cut of the end mill

is the same as that used for the keyway cutter. In addition to the regular cutter one for the Woodruff key has been provided which is held in the collet and is raised and lowered in the same way as the regular cutter. The machine will cut keyways  $\frac{1}{2}$  in. deep and 12 in. long in shafting ranging from  $\frac{1}{2}$  to 3 in. in diameter at speeds of  $\frac{3}{4}$  and 1 in. per minute.

**A Continuous Filter Press.**—A filtering press designed to remove liquid from mash or anything of a similar nature and differing from the majority of continuous filters which are designed on the roller principle has been brought out by J. J. Berrigan, 136 North Center street, Orange, N. J. In this press there are 54 buckets or links in the chain, which travels under two pulleys and over two others. These buckets open when going over the pulleys and close when going under them, the amount of pressure on whatever substance is between the pan and the rocker of the bucket depending upon the weight of the chain used. When all the buckets are full the chain underneath is almost straight, and if a stick or stone be placed in one of the buckets the chain will adjust itself automatically without damage. The material to be filtered is fed from hopper at one end and the chain travels toward the other, the buckets emptying into whatever is placed to receive their contents, while the liquid runs out through troughs placed under the intermediate pulleys. The speed of operation is very low, and as the machine is almost entirely back geared the power consumed even when all the buckets are filled is very little.

**Valve Grinder.**—The R. K. LeBlond Machine Tool Company, Cincinnati, Ohio, has recently developed a grinder for grinding the angular seats on automobile valves. The machine is essentially a single purpose machine, and grinds the parts accurately and rapidly. It consists of a base column and knee cast in one piece to insure rigidity. The latter carries a saddle gibbed throughout its entire length and having a long bearing on the knee. The table slides on a large V and is gibbed to the saddle. The upper part of it carries the chucking mechanism and will swivel so that accurate setting to the proper angle is easily accomplished by micrometer adjustment. The chucking mechanism, which is incorporated in the swiveling part of the table, consists of a draw-in attachment and collet for holding the work. This enables the valve to be chucked and held close to the part to be ground, an arrangement which relieves the stem from all tendency to spring. The chuck is operated by a lever and the valve can be chucked almost instantly after the attachment is set. The work spindle is driven at any one of three speeds by a belt running from a grooved wheel on it to the countershaft. The grinding head has a hardened steel spindle and carries a wheel 8 in. in diameter and  $\frac{1}{2}$  in. wide. The cross feed is equipped with a graduated dial reading to 0.001 in. and the table movement is equipped with adjustable stop.

**Drilling Machine for Caster Wheels.**—It is essential that in making caster wheels the shaft hole be drilled as rapidly as possible, and for this class of work the Hoefler Mfg. Company, Freeport, Ill., has recently designed a special seven-spindle drilling machine. One of the special features of the machine is the feed mechanism, which consists of bronze rings pivoted to arms by cone point set screws having lock nuts. The end of this feeding arm near the shaft has two semi-elliptical lugs cast on each side, which hook under a milled and turned ring fastened to a plate that contains the seven bronze sleeve boxes for the spindles. A long roller riding on a cam gives the drill a uniform feed with a rapid return which fully clears the caster wheel as it is released from the machine and with a short rapid advance until the drill point nearly touches the new caster wheel to be drilled. The feed, the limits of which are from 1 to 2 in. in order to keep the drills working at their maximum economical feed, depends upon the speed of rotation of the entire drum of castings around the central axis. In use all the operator has to do is simply place the wheels in a receiving spout which is adjustable for different widths of wheels so that as they roll down the spout into the machine they will maintain their upright position. At the bottom of the spout they are gripped by a device which receives, centers and automatically grips the pieces. The output of the machine is from 20 to 30 wheels per minute, or one in a trifle over 2 sec.



## Trade Publications

**Lubricating Appliances.**—The Richardson-Phenix Company, Milwaukee, Wis. Bulletin No. 54. Describes the round and square types of the Phenix lubricator oil pump, which forces oil at stated intervals into the engine cylinders. Following a discussion of the lubrication of auxiliary pieces of machinery in a power plant, the applications of this lubricator are taken up. There are a number of engravings showing the lubricator in use on engines, electric generators, air compressors and steam hammers. A complete description of the design and operation of the device completes the bulletin.

**Planers.**—Niles-Bement-Pond Company, 111 Broadway, New York, N. Y. Catalogue. Shows the various types of planers which this company is prepared to equip with a reversing motor drive. This type of drive was illustrated in *The Iron Age*, July 7, 1910, and can be supplied for machines handling work ranging from 30 to 120 in. in length. The great variety of cuts possible with the reversing motor drive are shown in a half-tone engraving which illustrates cuts taken with a 76-in. planer driven by a 30-hp. reversing motor in a cast-iron slab. These cuts were various roughing and smoothing cuts at different feeds and cutting speeds ranging from 25 to 40 ft. per minute, a 1½-in. constant cut with a cross feed tapering from 1/64 to ¼ in. and showing the small margin required for the over travel of the top with varying feeds and another section showing the possibilities in shortness of stroke and small variation.

**Converters.**—Tropenas Converter Company, 50 Church street, New York, N. Y. Pamphlet. Size, 6 x 9 in.; pages, 52. After a brief description of steel, what it is and how it is made, the manufacture of steel castings and the use of the Tropenas process are described at length. The illustrations show converter installations and different stages in the process together with some of the castings produced.

**Gas Producers.**—Standard Gas Power Company, Walton Building, Atlanta, Ga. A brochure giving an elementary discussion regarding what producer gas is, how made, what it will do, how to select a producer, etc. Some useful tables are given, including the power output for different types of steam engines and also for internal combustion engines using oil, gas, gasoline and producer gas.

**Springs.**—Harrow Spring Company, Kalamazoo, Mich. Folder. Describes the various types of Burdick springs which this company can furnish. The different kinds include car, wagon, truck and locomotive springs. The stock entering into these springs is selected by the maker, the process including even the ore used.

**Car Trucks.**—Bettendorf Axle Company, Bettendorf, Iowa. Book. Size, 8 x 9 in.; pages, 14. Is a book of jingles illustrated in colors and, like its predecessor, relates to the experience of a railroad official in visiting the shop of the "Bettendorf Bears." The story of the manufacture of the Bettendorf truck is told in Mother Goose style and the text is supplemented by a number of illustrations.

**Metal Spinning Lathes.**—P. Prybil, 512 West Forty-first street, New York, N. Y. Catalogue No. 11. Covers a line of metal spinning lathes which are made in both the straight and extension bed types and their various accessories. All of these parts are described and the text is supplemented by engravings. The lathes are made regularly for spinning round work only, but if desired the larger sizes of the straight tool and the extension bed lathe can be equipped to produce oval or elliptical shapes.

**Turnbuckles and Clevis Nuts.**—Michigan Bolt & Nut Works, Detroit, Mich. Bulletin No. 17. Concerned with a line of drop forged turnbuckles and clevis nuts. The turnbuckles are made with or without stub ends and drop forged hooks and eyes or loop welded eye stubs of any combination, plain or galvanized. Two types are made, one with a round head and the other with an hexagonal one, the latter being tightened and slackened by a wrench. These turnbuckles are made for screws ranging from ¼ to 2½ in. in diameter and the clevis nuts range from ¾ to 2 in. diameter of the screw. In addition to the regular turnbuckle a number of special styles with welded eye loops, drop forged eyes or hooks, and with threaded or swivel ends in any desired combination are also briefly mentioned.

**Alternating-Current Rectifier.**—Wagner Electric Mfg. Company, 6400 Plymouth avenue, St. Louis, Mo. Bulletin No. 93. Points out the advantages of using the Wagner alternating-current rectifier for charging small storage batteries from alternating-current light or power circuits. The use of this device enables the small storage batteries used to supply the current for ignition in automobiles and launches to be charged at home or wherever alternating current is available without having to send the batteries to a direct-current power house for charging with the accompanying inconvenience and liability to damage.

**Electrolytic Generation of Oxygen and Hydrogen.**—International Oxygen Company, 68 Nassau street, New York, N. Y. Pamphlet. Size, 6 x 9 in.; pages, 16. Refers to the I. O. C. system of generating oxygen and hydrogen for cutting, welding and other purposes which was illustrated in *The Iron Age* August 17, 1911. A description of this system which employs electrolytic cells for decomposing the water into the oxygen and the hydrogen is given, the text being supplemented by line and half-tone engravings of the generators. The merits of the oxy-hydrogen and the oxy-acetylene flames for autogenous welding are compared and this is followed by

a brief description of the oxy-hydrogen process of cutting and welding together with the results of a number of tests.

**Roller Bearing Cars and Trucks.**—Chase Foundry & Mfg. Company, Columbus, O. Supplement to Catalogue No. 11. Lists a variety of roller bearing cars and trucks for different purposes. These include a car for cement block and brick, one with portable decks; a roller bearing stationary rack car for drying cement block, brick, tile, gypsum, starch, etc.; a transfer car, roller bearing turntables and hand trucks. All of these are illustrated and briefly described. Space is also given to a switch with and without a stand.

**Hoists.**—The Chisholm & Moore Mfg. Company, Lakeside avenue and East Forty-ninth street, Cleveland, O. Catalogue. Calls attention to a line of chain hoists and trolleys which include the Cyclone high speed chain hoists, an illustrated description of which appeared in *The Iron Age* November 10, 1910; the Moore anti-friction chain hoist, standard screw chain hoist, geared and plain yoke trolleys and Cyclone trolley hoists. Space is also devoted to hand power traveling cranes and trolley hoists for handling shells and guns. Tables of dimensions of the different types of hoists and a brief description of door hangers of different types complete the catalogue.

**Ballbearings.**—The Hess-Bright Mfg. Company, Twenty-first street and Fairmount avenue, Philadelphia, Pa. Loose leaf data sheets. Give a number of details regarding the use and application of the various types of ball bearings. These sheets are issued from time to time and are intended to be bound by the engineer receiving them in a binder supplied by the company.

**Jacks.**—Belleville Pump & Skein Works, Belleville, Ind. Pamphlet. Calls attention to an extensive line of jack, house raising and thrust screws; ratchet and wagon jacks and foot valves and strainers. Among the jacks mentioned are a locomotive jack screw and a lever ratchet track jack.

**Blowers and Ventilating Fans.**—American Blower Company, Detroit, Mich. Bulletions and circulars. Circular No. 310 is concerned with the Ventura electric ventilating set which is a reversible device for use in top sashes of windows, transoms and ends of skylights. An illustrated description of this set appeared in *The Iron Age*, May 25, 1911. Bulletin No. 315 gives general description and specifications for the Ventura disk ventilating fan which is the latest development in curved blade disk fan design and construction and possesses the ability to overcome resistance and throw an air current straight ahead. *The Iron Age*, May 18, 1911, contained an illustrated description of this fan. The other circulars give descriptions of various other products, including the Sirocco and the A B C exhaust fans for exhausting, elevating and conveying and ventilating, and the Sirocco electric forge blowers which were illustrated in *The Iron Age*, June 29, 1911.

**Water Cooler.**—Power Specialty Company, 111 Broadway, New York, N. Y. Bulletin No. 201. Refers to the Power water cooler, which is designed for cooling circulating water; for treating air requiring heating, cooling, washing, humidifying and dehumidifying and for concentrating liquid solutions of all kinds. The operating principle of the cooler is described and its applications to gas and oil engines, air cooling and dry blast are briefly described.

**Fireproof Construction.**—Suspension Steel Concrete Company, 1808 Fisher Building, Chicago, Ill. Loose leaf catalogue. Describes a system for constructing reinforced concrete fireproof buildings without forms and at a low cost. The system employs iron pipe columns and beams, the centers of which are filled with concrete before erection. The vertical and horizontal members are fastened at the joint with angle straps and constitute the frame of the building. Wire stretched around the beams makes the horizontal frame for the floors and ceilings while the vertical frames for the inner and outer walls are made by running the wire from one floor to the other. A number of line engravings show the application of the system and this is supplemented by half-tone engravings showing buildings in course of erection. Suggestive floor plans for various classes of buildings with a brief description of each on the pages facing the engravings complete the catalogue.

**Brass and Copper.**—The Michigan Copper & Brass Company, Detroit, Mich. Price list. Contains data regarding the terms of shipment and the information required to fill orders and specifications for standard lengths of brass, bronze, copper and German silver materials are given. Two pages are devoted to the base prices of the different metals and this is followed by tables of the various extras and the weights of sheet brass and bronze, brass wire, brass and bronze rods, tubing, angles and channels, sheet and rolled copper, copper wire and yellow metal. Tables of diameters, circumferences and areas of circles and of copper wire and decimal equivalents follow with tables showing the difference between the standard wire gauges and the decimal equivalents of the different sizes of wire.

**Oil Engines.**—Busch-Sulzer Bros.-Diesel Engine Company, South Side Bank Building, St. Louis, Mo. Bulletin No. 101. Concerned with the stationary type A-3 and A-6 Diesel oil engines which are of the vertical inclosed crank design and develop from 75 to 450 hp. The construction of the engine is briefly described and the text supplemented by line drawings. The advantages claimed to be possessed by this engine are minimum fuel consumption, simplicity of construction, regular ignition, accurate speed regulation and space economy. Results of tests made on several of these engines are included and a brief table of specifications completes the bulletin.

## The Machinery Markets

One of the largest machine tool lists issued this year has been distributed among Western dealers by the Chicago & Alton Railroad. It calls for 91 machines, many of them of the larger sizes. In addition to this there is a \$5,000 list in the Chicago market from an industrial interest, with good inquiries from other sources. Sales in that market have been good. A steady increase in business is noted in Detroit and inquiries are better. Reports from Cleveland are not encouraging, inquiries and sales being principally for single machines, but engines and boilers are in better demand and a good second-hand business is being done. A better feeling exists in Cincinnati, where the foreign trade continues good and inquiries are coming in in good volume. There is an unusual call for power equipment in the South. In Texas many new industrial plans are maturing and a big business is expected during the fall and winter. Small machine tools and shop supplies are in demand on the Pacific coast, and logging and mill equipment is selling well. Some business is being done in paper-making machinery in Philadelphia, but otherwise conditions there are unchanged. The New York market is equally quiet. New England machinery dealers find inquiries increasing and orders are promised. The export demand is good in all markets.

### New York

NEW YORK, September 20, 1911.

Machinery houses handling a general line of mechanical equipment continue to do a reasonably good business in filling orders for small lots of tools required principally for replacements. The demand for some classes of machine tools is not very active and trade is unevenly distributed. Some manufacturers' representatives who handle a limited line of machinery are getting very little business, while others are doing well. The railroads are practically out of the market in this vicinity. A tool is being purchased here and there, but no buying of consequence is being done by the railroads, although there are some good prospects ahead. The Delaware, Lackawanna & Western Railroad is looking into the question of machinery with a view to equipping a new shop which it is expected will be built at Scranton, Pa. The Delaware & Hudson Railroad is not progressing very rapidly with its plans for shop extensions at Watervliet, N. Y., but this business should come before the trade within the next few weeks. The Erie Railroad has been buying a little and the New York Central places an occasional order. Machinery sellers are uncertain as to whether the New York Central is purchasing against the list it has had out so long or whether the machinery it is buying in small lots from time to time is for replacements. A number of railroad shops in the East are being overhauled in the expectation of freight car repairs incident to the crop haulage. Whether this work will result in machinery purchases remains to be seen, but the master mechanics and superintendents of motive power are making requisitions. It is expected that the Pennsylvania Railroad will soon come into the market for power machinery and other equipment to carry out its plans for extending its electric zone through New Jersey and Pennsylvania.

The Riverside Steel Casting Company, Newark, N. J., is building a new plant on the Newark meadows at the Plank road and Passaic River which the company expects to occupy about November 1. The foundry will consist of a main bay, 40 x 150 ft., and two small bays 25 ft. in length. There will be a power house, 25 x 50 ft., capable of producing about 100 hp. The foundry will be served by a 5-ton electric traveling crane and it will be equipped for making castings up to 2000 lb. in weight. The company makes a line of fine steel castings, subject to extensive machine work. All the equipment of the plant has been purchased.

The Merschell-Spillman Company, North Tonawanda, N. Y., has begun the erection of a three-story, reinforced concrete building which will be used for a machine shop and assembling department. The building will be so arranged as to admit of the construction of a fourth story later on and will give the company increased facilities for the manufacture of its line of automobile, marine and gasoline motors.

The Luitwieler Pumping Engine Company, 123 Ames street, Rochester, N. Y., will shortly let contracts for the enlargement of a factory wing. The addition will be 60 x 135 ft., two stories, of brick, steel and concrete construction. The additional space will give better facilities for the construction of a new motor fire apparatus the company is building.

The Niagara Chocolate Company, Niagara Falls, N. Y., is preparing to build a plant on Erie avenue, Niagara Falls, which will be equipped with confectioners' machinery, a power plant and icemaking machinery. Electric motors will also be installed.

The North Tonawanda Musical Instrument Company, North Tonawanda, N. Y., is preparing to erect a large plant for the manufacture of mechanical and automatic musical instruments. The company is not decided as to its machinery equipment and desires manufacturers' catalogues.

The Pratt & Letchworth Company, Buffalo, N. Y., is arranging to construct an 80-ft. extension to its main steel building. No additional equipment will be required.

Norbert H. Schickel, 52 East Eighty-third street, New York, is purchasing machine tool equipment for a small plant he is establishing at Stamford, Conn., to manufacture a motor cycle of his own design.

The Castle Lamp Company, Amesbury, Mass., will shortly move its plant to Elmira, N. Y. The company is constructing a large plant there for manufacturing its line of lamps.

Henry Pels & Co., 90 West street, New York, have recently sold several large beam shears, all of them to replace old-style shape-cutting devices, and are taking a number of orders for combination machines. Their export business is especially favorable.

The L. J. Wing Mfg. Company, 90 West street, New York, is contemplating additional manufacturing equipment in the line of machinery.

The West Side Foundry Company, Troy, N. Y., in the past year has built an addition of 140 ft. in length to its third shop and has also doubled the capacity of the core room. These additions have increased the output about ten tons per day of custom gray iron castings.

The Positive Clutch & Pulley Works, 30-32 Lansing street, Buffalo, N. Y., has practically doubled its capacity since the beginning of August by acquiring an adjoining building, which is of the same size as its original factory. This seemed necessary in view of the very encouraging demand for its line of goods, and in order to handle orders with satisfaction and promptness. In addition to clutches and pulleys, the company is bringing out a complete line of hangers, compression couplings, pillow blocks, etc., covering practically the general run of transmission appliances. Concerning the condition of business, the company reports the outlook very promising. Starting as it did from the beginning of the year, and manufacturing only practically since July 1, it has been developing its business through the vacation season, and from indications believes that before the first of the year it will have all the business the factory can possibly take care of.

W. E. Tuttle, Industrial Commissioner, Niagara Falls, N. Y., has arranged with the Gaso-Electric Motors Company to establish a plant in that city.

Fire damaged the factory of the Peerless Furniture Company, Jamestown, N. Y., September 16, to the extent of \$25,000.

The Shipwell Wardrobe Case Company, Rochester, N. Y., has been incorporated, with a capital stock of \$100,000, to manufacture shipping cases for clothing, etc. J. A. Moss, J. C. Freeman and G. A. Brayer Rochester, are the incorporators.

Munson Bros., Utica, N. Y., have commenced construction of their new plant at Whitesboro, N. Y. A foundry building, 100 x 200 ft., one-story, and a pattern building, 50 x 160 ft., and a warehouse and shipping room, 50 x 30 ft., all to be of steel and brick.

The Wheat Ice Cream Company, Buffalo, now located at 72 Elm street, has let general contract to the Buffalo Expanded Metal Company for erection of a new factory, 150 x 175 ft., three stories and basement.



## THE MACHINERY MARKETS

at 271 Elm street, near Broadway, to cost \$120,000.

The Krotzer Company has been incorporated at Buffalo with a capital stock of \$10,000. The company will make motors, engines, etc., and is arranging for the establishment and equipment of a plant in that city. The directors are Louis E. R. French, Israel G. Holender, Christopher M. Baldy and Chas. H. Taylor.

The B. V. Covert Motor Vehicle Works is building an addition to its plant at Lockport, N. Y.

A large addition to the plant of the Niagara Textile Company on South Transit street, Lockport, N. Y., is to be begun immediately.

The Philadelphia Wrecking Company, Buffalo, has established a plant and storage yard at South Division street and the New York Central Railroad and is equipping it with hoisting and unloading machinery and a small amount of metal-cutting and welding machinery.

The Kunz-Adams-McNamara Company, Buffalo, has been incorporated, with a capital stock of \$10,000. Specialties and novelties in wood will be manufactured. The company has purchased the two-story brick factory, 90 x 120 ft., at 41-49 Letchworth street, which it will equip for the purpose. The incorporators and officers are Wm. Kunz, Weber M. Adams and Omer B. McNamara.

The Binghamton Soap Works has been incorporated at Binghamton, N. Y., and will build and equip a plant for the manufacture of soaps, candles and perfumes. N. G. Wilcox, W. C. Kingsbury and H. L. Hart, Binghamton, are the incorporators. The capital stock of the company is \$50,000.

The U. S. Hame Company, Buffalo, is building a large 1¼-story brick addition to its plant at Tonawanda street and the New York Central Railroad.

Groff & Co., Johnstown, N. Y., are building and equipping a glove factory on North Market street, two stories and basement, 61 x 73 ft.

The Buffalo Steam Roller Company, now located at Carolina and Efner streets, Buffalo, in premises leased from the Buffalo Pitts Company, will move its plant to Springfield, Ohio, about December 1, a plant in that city having been recently acquired. The headquarters of the company will remain in Buffalo and it is possible a Buffalo plant may be re-established later. H. S. Cunningham is president of the company.

The Lippard-Stewart Motor Truck Company, Buffalo, has leased factory premises in the Century Telephone Company's Building at Elmwood avenue and the New York Central Railroad line which it will at once equip for manufacturing purposes.

The Overland-Rochester Company, Rochester, N. Y., has been incorporated, with a capital stock of \$30,000, and is arranging for a factory for the manufacture of automobile engines, etc. The incorporators are E. D. Creed and F. C. Cribb, Rochester, and R. R. Scott, Canandaigua.

The Niagara Chocolate Company, which is building a factory on Erie avenue, Niagara Falls, will install up-to-date chocolate and confectioner machinery, steam plants, icemaking and electric motors.

The Niagara Machine & Tool Company, Buffalo, will build a four-story, reinforced concrete and brick addition to its new plant established last year at Northland avenue and the New York Central Railroad Belt Line. The cost of the building will be \$30,000.

The Rochester Stamping Company, 141 Jones street, Rochester, is receiving bids for a four-story and basement factory building, 60 x 109 ft.

The Standard Furniture Company, Herkimer, N. Y., has let the contract for its new factory building, which is to be 100 x 200 ft. and six stories and basement, of reinforced concrete.

### New England

BOSTON, MASS., September 19, 1911.

The machinery dealers report an increased number of inquiries, with the promise of more actual orders. The General Electric Company's big list for the new shop building at Lynn will in itself give a large amount of new business. The Boston & Maine Railroad is proceeding toward the issuing of new stock, the proceeds of which will be devoted to the building and equipment of the new locomotive and car repair shops at Billerica, Mass., which call for the expenditure of some \$2,500,000. On the other hand the builders of machine tools are not feeling any improvement, and some of them are reduc-

ing production, by shorter hours and reduced working forces. Word comes from Greenfield that the tap and die industry is in a satisfactory condition, and some of the chuck makers report a good business.

The Baird Machine Company, Oakville, Conn., manufacturer of special machinery, presses and tumbling barrels, is about to occupy its new plant at Bridgeport, Conn. The company will have greatly increased space for the development of the rapidly growing business, with every facility afforded by a modern shop building and equipment.

The city of Boston proposes to establish a central electric power station in the new city hall annex, with power great enough to supply the needs of the present city hall. Another electric station will be created by the city at Gallup's Island.

Announcement is made that the business of the McCue Company, manufacturer of automobile axles and forgings, will be removed entirely from Hartford, Conn., to Buffalo, N. Y., where the company has acquired the works and business of the Superior Axle & Forge Company. As has already been stated the two industries have been merged into a New York corporation, continuing the name of the McCue Company. The first announcement was that the Hartford works would not be disturbed, but now the new factory building is advertised for rent.

A Massachusetts syndicate headed by J. A. Coram, Boston, proposes to expend \$6,000,000 in developing the water power of Kootenai Falls, Mont., for distribution in western Montana, northern Idaho and northeastern Washington. The published estimate is 80,000 hp.

The Union Pin Company has been organized at Waterbury, Conn., to manufacture pins, using machines of a type recently developed by James Kelley and manufactured by him at Torrington, Conn. The new company will have the factory at Waterbury now occupied by the Harrison Chair Company, and will move to the premises in about two months. The concern will be operated as a copartnership between Mr. Kelley, Peter Allison and Thomas Murray, foundry manager for the Turner & Seymour Mfg. Company, Torrington.

The works of the Brown & Sharpe Mfg. Company, Providence, R. I., are normally busy, running full time without decrease in working forces. During the annual summer vacation of two weeks a large amount of rearrangement of equipment was carried out, the location of upward of 300 machines being changed.

The Butler Chuck Company, Greenfield, Mass., manufacturer of drill chucks, has incorporated with a Massachusetts charter and \$10,000 capital stock, the incorporators being Harry E. Ward, Harry A. Weymouth and William H. Gould. The business has been established for some years.

Sargent & Co., New Haven, Conn., manufacturers of hardware, will enlarge one of their factory buildings by carrying it up two stories. The building is 32 x 128 ft.

The Williamsville Buff Mfg. Company, Danielson, Conn., manufacturer of cotton buffs, has started operations in its new factory in that place, having removed from Williamsville. A new boiler of 100 hp. has been installed. The company will continue to manufacture the A1 buffs as well as the other grades which it has established in the market. The officers, all of whom have been identified with the business since the manufacture of buffs was begun, are C. W. Atwood, president and treasurer; H. C. Atwood, vice-president and assistant treasurer, and H. B. Atwood, secretary.

The Skowhegan Novelty Works, Skowhegan, Maine, manufacturer of wooden specialties, states that its new building will be used for setting up and storage purposes and that no new machinery will be required excepting a small motor.

Chace & Harriman, Inc., who are identified with developing the water power of the upper Connecticut River and its tributaries, has filed plans for extensive developments on the Deerfield River, including the erection of a large dam and the building of a tunnel 2800 ft. long, which will carry the water to Shelburne Falls, Mass., where a large power plant will be established.

The Commerce, Industrial and Educational Exposition of the Boston Chamber of Commerce will be held in Mechanics' Building, that city, October 2 to 28, inclusive. The management already has the assurance of exhibits by a large number and great variety of industries, including a considerable showing of metal goods and machinery.

The Austin Mfg. Company, Grand Rapids, Mich., has made a proposition to the city of Cambridge, Mass., with a view to locating in that city.

## THE MACHINERY MARKETS

Additions to general manufacturing plants of New England include the following: Montello Heel Company, Brockton, Mass., 45 x 100 ft., four stories; Lowell Bleachery Company, Lowell, Mass., additions; American Net & Twine Company, Cambridge, Mass., additional factory building, 70 x 180 ft., two stories and basement; Cloggston & Son, New Haven, Conn., paper boxes, addition, 60 x 175 ft.; Downer, Hawes & Co., Bridgeport, Conn., additional building, 30 x 100 ft., one story; Thomas Taylor & Son, Hudson, Mass., addition, 18 x 45 ft., four stories; Crown Mfg. Company, Pawtucket, R. I., cotton goods, new mill, 138 x 340 ft., and power house, 40 x 56 ft.; American Hide & Leather Company, Lowell, Mass., beam and hide house, covering 48,000 sq. ft.; Housatonic Power Company, South Norwalk, Conn., addition to gas plant, for the manufacture of water gas, Hutchings Organ Company, Waltham, Mass., buildings, 40 x 80 ft., four stories, 30 x 100 ft., four stories, and 15 x 40 ft., two stories.

The Sampo Mfg. Company, Gardner, Mass., manufacturer of automobile tire pumps, is considering the removal of its factory to Fitchburg, Mass.

The Veeder Mfg. Company, Hartford, Conn., is building an addition to its plant which will about double its size and is reconstructing the old building to make it a modern and practically fireproof structure. This has been necessitated by the large demand for some new instruments that company has brought out and others which it is bringing out. The hub odometer put on the market about a year ago has been a great success, filling the demand for an instrument giving an accurate record of the mileage of the automobile to which it is attached. In the near future the company will bring out a setback counter, the demand for such an instrument being extremely great. It has been crowded to its greatest capacity for over two years.

Boynton & Plummer, Inc., manufacturer of machinists' tools and blacksmiths' supplies, now located at 54 Hermon street, Worcester, Mass., have acquired the Knowlton factory at Gardner, which has been vacant for some time. After repairs are made to these buildings the Boynton & Plummer company will move its equipment there. This concern is one of the oldest tool companies in Worcester, having been in existence for more than 50 years.

### Philadelphia

PHILADELPHIA, PA., September 20, 1911.

Little actual improvement in the demand for either standard or special machinery or tools is noted. In occasional instances manufacturers of certain lines of equipment are comparatively busy, this being particularly noticeable in certain types of heavy machinery, such as equipment for paper making, etc., and the smaller classes of special tools. For the general run of machine tools, however, for either wood or metal working purposes, or for special tools used in industrial plants, no active betterment in the demand is shown. Sales continue unimportant, single tool business predominating, with an occasional transaction covering a few small tools. Very little large buying is in sight. Inquiries appear less numerous and are confined to small and single tools. An occasional inquiry for a few small tools for railway shop equipment have recently come out, but these close very slowly. Locomotive builders report a diminishing volume of business. In second hand equipment there has been a fair scattered demand, confined to no particular class of tools or machinery, the larger portion of the inquiries being for equipment of a special nature. New business in boilers and engines continues light and confined principally to those of the smaller horsepower. Iron and steel castings are in unsatisfactory demand.

The Pennsylvania Railroad Company has sent out inquiries for a few tools, including an engine lathe and a sensitive drill, against which bids have gone in, but orders have not yet developed.

The Schofield Engineering Company will engineer and supervise the construction and installation of equipment of an electric light plant to be installed for the city of Danville, Va. The plant will cost about \$150,000.

Dodge, Day & Zimmerman, engineers, are progressing favorably on plans for the new plant of the Hess-Bright Mfg. Company to be erected at Erie avenue and B street. The main building will be three stories, of brick and concrete. They also have preliminary

plans under way for several other industrial enterprises, but as a rule these develop rather slowly.

The League Island Navy Yard is in the market for a double circular saw, for which proposals will be received under schedule 3895, until September 26. Blank proposals and specifications may be obtained on application to the Navy Pay Office, Philadelphia.

The Pennsylvania Equipment Company, West End Trust Building, is in the market for a two to five-ton quick handling standard gauge locomotive crane, also for a second-hand 36-in. gauge locomotive crane, three to five-ton capacity, and a steam turbine outfit of 300 to 400 K. W., 250 volt., 150 steam, 26 to 28-in. vacuum, in one or two units. This concern also desires to purchase 10 to 15 100,000-lb. capacity steel gondola cars.

The commission to erect a State hospital for the insane at Fairview, Pa., will receive bids until September 26 for the construction of new buildings, including a laundry building, power building, ice house and system of sewage disposal, together with equipments for the kitchen, laundry and power building connected with the institution. Drawings and specifications may be had on application to J. C. M. Shirk, architect, 518 Philadelphia Bank Building, Philadelphia.

The Callister Mfg. Company, Harrisburg, Pa., was recently incorporated, under the laws of the State and will engage in the manufacture of the Case railroad tie-plate and safety clamping bolt rail fastening, under patents of Homer W. Case. The officers of the company are as follows: Dickinson McAllister, president; H. W. Case, secretary and treasurer. While the company is yet in the formative stage, the plant will be located in Harrisburg.

The Weimer Machine Works Company, Lebanon, Pa., reports orders received for two cinder cars for the Wellston Steel & Iron Company and a blowing engine for the Stephenson Charcoal Iron Company. A furnace top is being built for the Warwick Iron & Steel Company and orders for a large quantity of castings, for use in connection with coke ovens, have been received from the Lackawana Steel Company.

An Eastern concern is in the market for a roll lathe of modern design; maker's name, description and price are desired. Communications should be addressed to Roll Lathe, care Philadelphia office of *The Iron Age*, Real Estate Trust Building.

The Standard Pressed Steel Company reports the demand for wrought steel hangers as comparatively active. There has been a good foreign demand, heavy orders being received from Holland, Switzerland and Canada. The domestic demand has been confined to a large number of small orders, which have aggregated a very good total. The demand for the other steel specialties manufactured by this concern has also been quite good. The plant is running at full capacity and the company has considerable forward work on its books. Some little additional machinery for its special work is being added to its equipment.

Proposals for the sale of the machinery located at the Fairmount pumping station of the city of Philadelphia will be received by John E. Reyburn, Mayor, until September 27.

The Lebanon Steel Casting Company, Lebanon, Pa., has completed the construction of a new factory at Easton, Pa., which is to be operated under the name of the Treadwell Engineering Company, and within a short time the company's present plant at Lebanon will be abandoned and the plant will be moved to Easton. The foundry is well equipped for handling castings ranging from one to 500 lb. in weight. The Easton plant in addition to the steel foundry consists of a large machine shop and iron foundry.

The Lycoming Foundry & Machine Company, Williamsport, Pa., which makes castings, special machinery and automobile motors, finds business so good that it is contemplating putting on two shifts in its machine department. The company has enough business in sight to keep its shops busy through the first half of 1912.

The Tabor Mfg. Company, Eighteenth and Hamilton streets, Philadelphia, has purchased about five acres near the Westmoreland Street station of the Chestnut Hill Branch of the Pennsylvania Railroad on which it contemplates erecting new factory buildings. The plans are in the hands of Dodge, Day & Zimmerman, engineers. The company reports that its business has resumed approximately normal proportions, and the prospects are that it will continue for some time.

Bancroft & Co., Harrison Building, Philadelphia, are marketing their Never Rust in a new form of package.



## THE MACHINERY MARKETS

For the past ten years they have been selling it in bulk to manufacturers only, for protecting finished steel and metal surfaces from the action of rust or tarnish, but recently they perfected arrangements for placing this same material, in a refined form, on the market for sale through hardware stores and are meeting with considerable success.

The Williamson Bros. Company, engineer, machinist and founder, Philadelphia, is at present engaged in making quite extensive additions to its plant, which will require more equipment in the near future. Both the machine shop and the foundry department are exceedingly busy.

The A. P. Wittman Company, 112 to 116 North Broad street, Philadelphia, is erecting a power building and installing a new power plant, now well under way and nearly completed, at its works at Chester, Pa. The company is confining its energies to the manufacture of forgings, both rough and finished, especially crankshafts. It recently completed the contract for the finished crankshafts for the submarines being built by the Wm. Cramp & Sons Ship & Engine Building Company, Philadelphia. It has not only been able to get enough business to keep running full time, but has two or three months' work ahead.

The Kensington Mfg. Company, 1109 to 1119 North Front street, Philadelphia, has just completed a plant for the manufacturing of packing, wiping and railroad waste. The plant is now in full operation, the company having booked almost sufficient business to run it until the first of the year.

The Hershey Machine & Foundry Company, Manheim, Pa., has in course of construction a good-sized addition to its foundry, and regards the outlook for its business in the near future as very bright.

The Milled Screw & Machine Company, manufacturer of screws and thread milling machines, Sayre, Pa., is contemplating increasing its equipment to take care of the large volume of business in its custom screw cutting department. The matter is not yet in such shape as to enable definite information to be given out.

### Chicago

CHICAGO, ILL., September 19, 1911.

Miscellaneous inquiry for machine tools has increased during the past fortnight in a most encouraging manner. A Gibson City, Ill., interest is in the market for tools to the amount of \$5,000, and a Harvey, Ill., manufacturer is inquiring for an aggregate of \$10,000 in new equipment. Sales of the past week include a number of milling machines and radial drills, a hobbing machine and gear cutter and a number of lathes. The nearby plant of the leading oil interest is inquiring for a few drills and lathes.

The Chicago & Alton Railroad has issued an extensive list as follows:

One 6-ft. double-cam brake.  
One slip roll stove and tin pipe former.  
One 30-in. adjustable pipe holder.  
One hollow mandrel.  
One 36-in. reach, 21-in. gap, 70-ton compression riveter.  
One double punch and shear, 36-in. throat, with capacity to punch  $1\frac{1}{2}$ -in. hole through 1-in. steel, to shear 1-in. plate, 2-in. round iron, and 5 x 5 x  $\frac{3}{4}$ -in. angle bars, to be equipped with motor drive.  
One heating furnace 6 ft. 8 in. x 10 in.  
One car axle journal turning lathe, 42-in. swing, with motor drive.  
One 3-ft. radial drill.  
One 2-in. triple bolt cutter.  
One new panel carver and freezer combined, including dovetail attachment.  
One chain saw mortizer, belt-driven.  
One 16-in. cutoff saw.  
One 24-in. circular self-feed rip saw.  
One double surfacer, 26 x 8 in.  
One extra range vertical hollow chisel car mortizer with 12-ft. traveling table and two universal boring attachments.  
One band, rip or re-saw sharpener, capacity 2 to 6 in.  
One band gang circular and re-saw saw.  
One automatic rip and cut-off circular saw sharpener.  
One combined band saw filing and setting machine, capacity  $\frac{1}{2}$  to  $1\frac{1}{2}$  in.  
One rod and dowel machine.  
One automatic traversing gaining machine, motor drive.  
Two 18 x 6-in. brass and turret lathes, self drive.  
Two 16-in. x 18-ft. patent head machine lathes, motor drive.  
One 18-in. clatter with link attachment, belt drive.  
Two 16-in. sensitive drill presses, self drive.  
Six double emery tool grinders; wheels 18 in. diameter x 3 in.  
One nut-facing machine, capacity  $\frac{1}{4}$  to 3 in.  
One horizontal milling machine, 24 x 30 in. x 14 ft., motor drive.  
One 2-in. triple bolt cutter.  
Two 18-in. x 6-ft. tool room lathes.  
One No. 4 universal milling machine.  
One 16-in. sensitive drill.  
One 18 x 36 x 96-in. gap grinding machine for piston rod, motor drive.

One drive bar grinder with traveling table to take guides 18 in. long, motor drive.

One 36-in. engine lathe, 10 ft. 6 in. between centers, motor drive.

One 36 x 36-in. x 10-ft. heavy pattern planer with two heads on the cross rail, motor drive.

One 90-in. extra heavy driving wheel lathe.

One 6-ft. radial drill, self drive; 1 to 5-ft. radial drill, motor drive.

Three 24-in. back gear crank shavers, single pulley drive.

One 30-in. boring and turning mill with single swivel turret head and three-jaw scroll chuck.

One 42-in. boring and turning mill with two heads, motor driven.

One 52-in. boring and turning mill, heavy pattern, two heads, motor drive.

One draw-cut shaper, 26-in. stroke.

One 100-in. boring and turning mill, motor drive.

One 48 x 36-in. x 16-ft. extra heavy planer, two heads, motor drive.

Two 3 x 36-in. flat turret lathes, motor drive.

One rotary splitting shear, 24-in. throat, capacity  $\frac{3}{4}$ -in. steel, belt drive.

One four-spindle mud ring drilling machine, belt drive.

One horizontal punch, capacity  $1\frac{1}{2}$  in. through 1-in. steel, 12-in. throat, motor drive.

One 36-in. vertical high-speed punch, capacity 1 in. through  $\frac{3}{4}$ -in. plate, motor drive.

One rotary bevel shear, capacity 1-in. plate, motor drive.

One water flue cleaner, overhead framework type.

One pneumatic hot saw with tube expander and safe magazine.

One pneumatic hot saw with tube expander.

One automatic safe end cutter.

One key-seating machine, capacity  $1\frac{1}{4}$  to 6-in. keys.

One pneumatic reversible motor.

Fourteen corner air drills.

One crank-pin turning machine.

One 2-in. triple bolt cutter.

One heating furnace, 2 ft. 10 in. x 4 ft. 4 in.

One 6000-lb. double-frame guide ram steam hammer, cylinders 22 x 60 in.

One 200-lb. helve hammer, belt drive.

One  $2\frac{1}{2}$ -in. forging machine, belt drive.

One hammer furnace, 5 x 8 ft.

One double bulldozer furnace, each compartment 3 ft. 2  $\frac{1}{2}$  in. x 9 ft.

Two forging furnaces.

One double emery tool grinder, wheels 18 x 3 in.

One roll-over straight-top molding machine to take flasks up to 60 in. in length and permit a draw up to 18 in.

One double-chamber melting furnace, capacity 1000 lb.

Two portable pneumatic screen shakers.

One core machine.

One power sprue cutter.

One 10-ton E.O.P. foundry crane, span about 55 ft., lift 17 ft.

One portable emery grinder.

One 10-ft. cornice brake, capacity No. 16 steel.

One 10-ft. squaring shear, capacity No. 16 steel.

One pipe-threading and cutting-off machine.

One double emery tool grinder, wheels 18 x 3 in.

One 12-in. sensitive high-speed drill, belt driven.

One 22-in. drill, belt drive.

One 90-in. extra heavy double quartering machine, motor drive.

One gutter beater, capacity 8 ft. x  $\frac{3}{4}$ -in. rod.

One power double-seamer.

One giant groover, capacity 8-ft. sheets.

Two encased small burrs.

One encased small turner.

One encased large turner.

One encased wearing machine.

One setting down machine.

One 36-in. bar folder.

One encased ring and surface shearer.

Prices to be quoted f.o.b. Chicago & Alton tracks.

The Excelsior Cycle Company, Chicago, has been incorporated to do a general manufacturing business, with a capital stock of \$30,000. The incorporators are Geo. A. Critton, R. R. Raymond and J. G. Anderson.

Western Steel Car & Foundry Company, Chicago, will build at its Hegewisch plant several new factory buildings at a total cost of \$60,000.

The Railway Sales Company, Chicago, has been organized to engage in the manufacture and sale of metal specialties, with a capital stock of \$34,000. The incorporators are Geo. S. Andres, Chas. W. Switson and Lawrence J. Walsh.

The Calumet Foundry Equipment Company, Chicago, with a capital stock of \$1000, has been organized to do a general manufacturing business by Arthur S. Basse, Chas. R. Young and C. W. Clark.

The Universal Draft Gear Attachment Company, Chicago, capital stock \$50,000, has been incorporated to manufacture and deal in railroad equipment and supplies by M. G. Lockhart, J. K. Murphy and G. R. Faust.

C. V. Oversmith, Brooklyn, Mich., announces the proposed incorporation of the Oliver Concrete Machinery Company, with a capital stock of \$100,000. The company will build a plant at Des Moines, Iowa, for which new machinery will be required.

The Chicago, St. Paul, Minneapolis & Omaha branch of the Northwestern Railway has taken out a building permit for the erection at Omaha, Neb., of a 16-stall round house to cost \$37,000.

The Northwestern Malleable Iron Company has taken out a permit to erect an addition to its foundry in Milwaukee, Wis., to cost \$2,500.

Wendnagel & Co., manufacturers of tanks, Twenty-second and Jefferson streets, Chicago, who added to

## THE MACHINERY MARKETS

their line about a year ago structural steel towers, are receiving very satisfactory business in the new department and are running their factory full force.

The Prime Steel Company, manufacturer of steel castings, Milwaukee, Wis., is now adding about 100 ft. on its Crucible Works, the construction of which is practically finished. This, however, is being done as a matter of the company's convenience and not in contemplation of increased business for some time to come.

The Vilter Mfg. Company, Milwaukee, Wis., has acquired additional property across the street from its present location for the purpose of erecting thereon a pipe shop to be 270 ft. in length and 120 ft. in width. The company builds icemaking and refrigerating machinery, Corliss engines and brewers' machinery.

The Matthews-Davis Tool Company, St. Louis, Mo., is about to erect a new factory building to cost \$18,000 upon the site purchased recently at 3724 Forrest Park boulevard.

The Mississippi Glass Company, 4136 North First street, St. Louis, Mo., is about to build a one-story machine shop to cost \$6,200.

The citizens of Campbell, Mo., have approved a bond issue of \$22,000 for a water works system.

The City Council of Springfield, Mo., has under consideration the sale of bonds to the amount of \$600,000, proceeds of which are to be used for construction of a municipal water works system.

The citizens of Bellevue, Neb., have voted for the issuance of \$20,000 in bonds for municipal water works.

The citizens of Dustin, Okla., will issue \$25,000 in bonds for the installation of a water works system.

### Cleveland

CLEVELAND, OHIO, September 19, 1911.

The machine tool market shows little life. The only change that has developed during the past few days is a little better demand for second-hand tools. Dealers have very little to work on in the way of inquiries and sales are limited almost entirely to scattering single tools orders. There is a fair demand for engines and boilers for small installations, this business coming largely from manufacturers outside of metal working lines. Makers of electrical equipment are getting a moderate volume of orders for small equipment but have no inquiries for large installations. More new construction work in the line of small manufacturing plants is under way or being planned than earlier in the year. Automobile builders in this territory are unusually busy for this time of the year and makers of automobile parts are fairly well supplied with orders. These plants are generally well equipped, however, and are buying very little machinery. In the foundry trade conditions show little change, the demand for castings not being active.

The Nungesser Electric Battery Company, Cleveland, will erect a new power house and will shortly place contracts for engines, boilers and stokers for a 450-hp. plant. This company has recently purchased from the Cleveland Steel Company property adjoining its plant near King avenue and Thirty-eighth street with the view of enlarging its output of carbons and carbon brushes, which it makes in addition to electric batteries.

The Home Power Company, Ashtabula, Ohio, has been organized with a capital stock of \$60,000 to take over the business of the H. Beider Mfg. Company of that city. The company will manufacture gas engines, washing machines, vacuum cleaners, bread mixers and other products. The present plant will probably be enlarged. The old company is said to have been very successful during the short time that it has been in business and a reorganization was found necessary to provide additional capital to increase the capacity. The officers are: David Loeb, president; H. Beider, vice president; H. A. McKinnon, secretary, and R. R. Wason, treasurer.

The Virden Mfg. Company, Cleveland, will shortly move from its present quarters at 5109 Euclid avenue to a new factory that is being erected at 6013 Longfellow avenue, S. E. The building is of brick, two stories and 36 x 100 ft. The company does brass spinning and makes a line of sheet metal products.

The Defiance Pressed Steel Company will enlarge its plant by the erection of three additions and will install a large electric galvanizing plant. One building, 70 x 80 ft. will be used for the galvanizing department and one 24 x 130 ft. and another 50 x 130 ft. will

be used for warehouse purposes. The buildings will be of brick, one story.

The City Ice Delivery Company, Cleveland, is having plans prepared for a large ice manufacturing plant to be built on the West Side of the city, that will involve an expenditure of about \$100,000.

The Hubbard Caloric Pump & Mfg. Company, Toledo, Ohio, has been incorporated with a capital stock of \$25,000 by F. B. Hubbard, B. B. Brun, W. B. Duck, F. M. Landis and A. Schaefer.

The Cleveland office of the Detroit Stoker Company, Detroit, Mich., has recently closed contracts for two stokers for boilers of 300-hp. capacity each for the American plant of the American Bridge Company, Chicago, two stokers for two 350-hp. boilers for the La Belle works of the Crucible Steel Company at Pittsburgh, and four stokers for 150-hp. boilers for the West Side Technical High school, Cleveland.

A new ice manufacturing plant will be built in Alliance, Ohio. Friedman & Scanlon, ice dealers, and others are interested in the project.

The Packard Electric Company, Warren, Ohio, has increased its capital stock from \$50,000 to \$100,000.

The Ohmer Fare Register Company, Dayton, Ohio, has acquired a 4½-acre site on the Big Four Railroad near the plant of the Ohio Rake Works, and it is announced that the company will shortly begin the erection of a large plant, having outgrown its quarters in the Callahan power building. A five-story building, 50 x 240 ft., is being planned, and also a power plant.

G. E. Gearing of Findlay, Ohio, and T. E. Bishop of Lima, inventors of a new line of pipe and monkey wrenches are planning the organization of a company to build a plant in the former city for the manufacture of their wrenches.

The Summit Brick Company, Summitville, Ohio, has been organized with a capital stock of \$150,000 to build a large plant for the manufacture of paving blocks and face brick. Ross Rue of Alliance, Ohio, will be the manager.

The Canton Casting Company, Canton, Ohio, a new concern that is being organized to manufacture radiators and castings for school desks, is negotiating with the Commercial Club of Kenton, Ohio, for the establishment of a large plant in that city.

The Craig Foundry Company, Bucyrus, Ohio, has been incorporated with a capital stock of \$30,000 by A. T. Dennis, H. C. Howland, Edson Scott, J. H. Shaw and W. J. Porter.

The National Tool Company, Cleveland, has let a contract for an addition to its plant, 35 x 150 ft., three stories, and expects to add considerable machinery for use in manufacturing not only milling cutters and special tools but several new products.

The Park Drop Forge Company, Cleveland, has such confidence in the future that it is planning a considerable increase of facilities. It is prompted to do this by strong evidence of its steadily gaining the confidence of the larger users of high-grade automobile crankshaft forgings, alloy steel gear work and the heavier class of truck axles. Its equipment of hydraulic presses and heavy steam hammers puts it in a position that is second to none in the country.

The Toledo Machine & Tool Company, Toledo, Ohio, reports a marked improvement in trade since September 1, and as the capacity of its works has always been felt to be quite limited during normal business conditions, it is now considering additions that will enable it to properly take care of the business which it feels sure will be offered as soon as general conditions again reach normal.

### Cincinnati

CINCINNATI, OHIO, September 19, 1911.

The National Association of Stationary Engineers held its annual convention in Cincinnati last week, and as a result manufacturers of valves and other engineering specialties feel very much encouraged over the outlook for an excellent fall business. The supply business generally is very good, with the exception of those houses depending on the larger railroads for support.

In machine tool circles there is a growing optimistic feeling, as the inquiry continues good both from the domestic and foreign trade. Foundries making a specialty of jobbing work are also more active, and the stove foundries are practically all operating up to capacity.



## THE MACHINERY MARKETS

The recently completed addition to the plant of the Smith & Mills Company, Cincinnati, manufacturer of shapers, is 60 x 60 ft., one story and of concrete construction. Part of this building is used for a power plant, in which has been installed a 100-hp. Miller Improved gas engine, together with a remodeled electric lighting system. The company reports its export business as holding up remarkably well.

The Rahn-Larmon Company, Cincinnati, lathe manufacturer, is contemplating an addition to its plant on Spring Grove avenue. This company, which owns a controlling interest in a plant at Knoxville, Tenn., has recently incorporated at that point under the name of the Knoxville Machine Tool Company.

The Warner Equipment Company, a new Cincinnati organization, has purchased the plant of the Cincinnati Equipment Company and will operate it as a repair shop for all kinds of railway and contractors' equipment. P. B. Warner, formerly with the Cincinnati Equipment Company, is president of the new company, and John R. Warner secretary and treasurer.

To manufacture ignition apparatus, the Blackburn-Allen Company has been incorporated at Dayton, Ohio, with \$30,000 capital stock, by W. J. Blackburn, E. B. Allen and others. No definite plans as to the location of its plant have yet been given out.

The Cincinnati Gear Company, whose headquarters were heretofore in the Murdock Building, has leased part of the old Victor Safe & Lock Company's plant at Eighth street and Broadway, in which the necessary machinery is now being installed. This move will nearly double the company's present capacity.

The Safety Mfg. Company, Wheeling, W. Va., has been incorporated, with \$75,000 capital stock, to manufacture brake shoes and railroad safety devices. J. H. Young of Wheeling is named as one of the principal incorporators.

W. A. Clark, clerk of the Board of Water Works, Wyoming, Ohio, a Cincinnati suburb, will open bids October 2 for furnishing and installing two 150-hp. water tube boilers, complete with automatic stokers, piping, etc. Specifications and blanks may be procured from Mr. Clark, or from B. S. Hughes, consulting engineer, Commercial-Tribune Building, Cincinnati.

The Ault & Wiborg Company, Cincinnati, will build an extensive addition to its varnish manufacturing plant in Idlewild suburb.

The Clifton Springs Distilling Company, Cincinnati, has taken out a permit for a three-story concrete dry-house, to cost about \$18,000, and for which some special equipment will be required.

The Chesapeake & Ohio Railroad Company has prepared plans for a large reinforced concrete depot to be erected in Newport, Ky., for which a considerable quantity of reinforcing steel bars will be required.

It is reported that some extensive additions will be made to the plant of the Hazel-Atlas Glass Company at Wheeling, W. Va.

The large addition to the plant of the Cincinnati Milling Machine Company at Oakley is now under cover and interior work is expected to be completed before cold weather sets in.

### Detroit

DETROIT, MICH., September 19, 1911.

A steady increase is noted in the number of inquiries received by local machinery dealers, and actual orders booked show a satisfactory volume of business. While the majority of sales are confined to single tools, a number of lots of three and four tools have also been purchased. There is a very general feeling among dealers now that September will show a marked improvement over August in the amount of business transacted. The market also seems broader and the buying is not confined to any one line, which is looked upon as a favorable sign. Standard shop equipment is showing quite a little activity at present and a good demand exists for contractors' supplies. Foundry consumption seems to be improving and the period of depression in this line is now thought to be at an end. Second-hand machinery is moving quite freely and dealers handling it are inclined to be pleased with the outlook. Building circles are still quiet and the new work on which figures are being asked is of an ordinary nature.

A good deal of interest is being manifested in the purchase by W. C. Durant, head of the new Chevrolet Motor Company, of a 40-acre tract of land on the northern city limits, which it is generally understood

will be used as a site for a new plant for the company. The Crucible Steel Castings Company and the Metzger Motor Car Truck department both have plants under construction adjoining this tract.

The McCord Mfg. Company, maker of automobile and railroad supplies, is building a one-story addition to its present factory.

The Penberthy Injector Company, manufacturer of injectors, oil cups, etc., has completed plans for the erection of a Canadian branch at Windsor, Ont., across the river from Detroit.

The Automobile Mfg. & Engineering Company, which recently organized with a capital stock of \$100,000, has secured an option on a modern plant and expects soon to commence the manufacture of commercial vehicles and motors. The company's offices are at 1209 Majestic Building.

W. H. C. Burnett has sold the Superior Motor Car Company to Petrolia, Ont., capitalists, and the plant will be removed to that city.

The Detroit Metal Window Screen & Strip Company has been organized, with a capital stock of \$18,000, by A. F. Chapaton, W. N. Crayden and Joseph E. Lee. The company will manufacture metal window trimmings.

The Schwartz Mfg. Company has been incorporated, with a capital stock of \$25,000, and will engage in the manufacture of metal specialties. Jacob L. Summers, W. S. Thomas and Josef Schwartz are the principal stockholders.

The Folding Scaffold Bracket Company has been incorporated by Edward N. Hayes, W. C. French and W. W. Morreson. The capital stock of the new company is given at \$10,000.

The Ignition Starter Company, maker of automatic starters for automobiles, has decided to remove its entire plant from Grand Rapids to this city. In connection with this decision, the capacity of the company's plant will be increased.

Following the announcement made recently that F. J. Gorma had purchased the old Ford motor plant, it has now become known that practically the entire plant has been acquired by the E-M-F Automobile Company and will be utilized for the manufacture of motor cars. This addition will increase the capacity of the E-M-F Company by one-fourth, and will add 1000 men to the payroll. The buildings will be immediately equipped with new machinery, some of which has already been ordered.

Claude N. Briggs has resigned as general manager of the Brush Runabout Company and will head a new automobile concern to be organized with a capital stock of \$200,000. A factory site is now being negotiated for and the manufacture of cars will be begun as soon as a plant can be put in operation.

The Miller Car Company has been incorporated, with a capital stock of \$50,000, by Theodore and Nellie Miller and C. B. Carven. No manufacturing plans have been announced.

The National Sad Iron Company has been organized by R. E. Sack, F. D. Decker and O. E. Schubert. The company has a capital stock of \$9,000 and will manufacture flat irons.

A. B. Read, North Branch, Mich., is establishing a heading mill near that village.

C. F. Boyce has broken ground for a factory building to be utilized as a fruit evaporating plant at Jonesville, Mich.

The Marshall Furnace Company, Marshall, Mich., is completing a new plant which it expects to occupy about January 1. G. H. Dobbins, manager of the company, states that the capacity of the present factory is greatly overtaxed.

The plant of the Holland Veneer Company, Holland, Mich., will be sold by trustee, Harvey F. Wonderly, at a receiver's sale, September 22.

The Banner Brewing Company, Saginaw, Mich., has broken ground for an addition which will double the capacity of the company's present plant.

The German-American Sugar Company, Bay City, Mich., is contemplating the enlargement of its factory and the installation of a molasses reduction process. The company will also make some improvements to its mill at Pauling, Ohio.

The American Sewer Pipe Company will soon reopen its factory at Grand Ledge, Mich. Considerable improvements will be made to the plant.

An automatic fire sprinkler company has been organized at Kalamazoo, Mich., by Victor L. Palmer and George Higgins. The company will have a capital stock of \$25,000.

## THE MACHINERY MARKETS

The capacity of the plant of the Von Platen Lumber Company at Iron Mountain, Mich., is to be doubled at once, including the purchase of additional equipment, some of which has already been contracted for. The company has under consideration the establishment of a flooring mill, shingle mill and dry houses.

The McMullen Machinery Company, Grand Rapids, Mich., report a fairly good demand for requirement in nearly every line, and now that the furniture strike has been settled, are optimistic over the outlook for the remainder of the year. The company has recently furnished the equipment for the two Grand Rapids manual training schools.

C. W. Post, capitalist, Battle Creek, Mich., has large projects in hand in that city which will include the construction of a huge power plant to heat all of Mr. Post's properties in the business section and the erection of a building for the Battle Creek Enquirer.

The Michigan Sugar Company has decided to double the capacity of the plant at Sebawaing, Mich., and will also install a molasses reduction house similar to those recently installed at the other plants of the company. Slicing machinery will be required among other equipment.

Breyman Bros., Toledo, Ohio, who have the contract for dredging the Saginaw River, near Bay City, Mich., are reported to be in the market for hydraulic dredging machinery.

The Public Lighting Commission, Grand Rapids, Mich., is contemplating the installation of the boulevard system of street lighting in the business section. Additional generating machinery will be required should the system be established.

The Stewart Sanitary Feed Trough Company has been incorporated at Grand Rapids, Mich., with a capital stock of \$25,000, and will engage in the manufacture of feed troughs of a new design and farm tools.

The Brock Brothers Mfg. & Construction Company, St. Louis, Mo., manufacturing cement roofing, is reported to be preparing to locate its factory in Kalamazoo, Mich.

The American Electric Fuse Company's plant at Muskegon, Mich., will be sold at receiver's sale at some date before November 1.

The Wolcott Packing Company has been organized at Flint, Mich., with a capital stock of \$60,000, and is constructing a modern packing house and refrigerating plant. W. C. Wolcott and F. D. Crissman are at the head of the company.

Baldwin, Tuthill & Bolton, Grand Rapids, Mich., are planning the erection of an additional factory building, 125 x 160 ft., to be of steel and concrete construction, work on which will be begun before next spring. This company recently completed a two-story addition to its existing plant and has instituted motors throughout for power purposes. A new line of knife grinding machines equipped with motor drive, is being developed by the company and some large-sized machines are to be made for use in metal-working plants for use in grinding large and heavy shear blades.

The Nichols & Shepard Company, Battle Creek, Mich., manufacturer of threshing machinery, intends to build a new factory, plans for which have not been prepared as yet.

The Michigan Steel Casting Company, Detroit, Mich., intends to erect a new building which will give the company additional storage space and facilities for a carpenter shop, etc.

The Dodge Brothers, Detroit, Mich., manufacturers of special machinery, tools, gears and automobile parts, have in course of construction a blacksmith shop, 65 x 40 ft., and a foundry, 120 x 200 ft., both of which are to be of steel fireproof construction. These buildings will complete a new manufacturing plant, part of which is now occupied.

The Manistee Iron Works, Manistee, Mich., is to extend its line of manufacture to include rotary pumps, and in this connection it is understood that the capital stock of the company will be increased to \$800,000.

The Diamond Mfg. Company, Detroit, Mich., is erecting a new all-concrete, fireproof building, which it expects to occupy early in the winter. Its business so far this year has been far beyond expectations, having been much larger than in any previous year.

The Hildreth Mfg. Company, Lansing, Mich., has just added two new engines to its Novo line of vertical gasoline engines, namely a 1½ hp. and an 8 to 10 hp., making the line much more complete. The condition of business in the gas engine line has been good all summer and is still keeping up.

### The South

LOUISVILLE, Ky., September 19, 1911.

An unusually large number of new manufacturing enterprises in various parts of the South is calling for an increased amount of power equipment. Machine tools are selling better in Southern territory, and the number of metal-working plants is being added to consistently. Crop conditions are good, and now that the fall-business has begun to develop manufacturers and dealers are looking forward to excellent trade conditions.

The report that the Alvey-Ferguson Company will abandon its Louisville plant has been denied from the offices of the company. The general offices will be removed to Oakley, Ohio, near Cincinnati, October 1, the company's new plant being located there. The Louisville factory, it has been definitely stated will continue to be operated.

The Myer-Bridges Company, Louisville, is in the market for an elevator to be installed in a three-story warehouse now under construction.

The Louisville Cement Company, which has mills at Speeds, Ind., has under consideration plans for enlarging the plant. These are at present only general in nature.

The Central Concrete Construction Company, Louisville, will shortly purchase a new block machine as well as a conveying outfit for handling concrete blocks.

The Abell Elevator Company, Louisville, has been incorporated with \$50,000 capital stock, George Abell, Garland H. Mourning and Garland H. Mourning Jr., being the incorporators. The company states that for the present no additional machinery will be required, the equipment having been purchased within the past month. All kinds of elevators will be made.

The Kentucky & Indiana Terminal Railroad Company has announced plans for extensive improvements, which include machine shops and a roundhouse at a cost of \$350,000. These will be used by the Baltimore & Ohio Southwestern, the Southern and the Monon, railroads which jointly own the Kentucky & Indiana Company. In addition a coal-handling plant and a sand-drying outfit are to be installed. The work will be carried on during the next few months. W. M. Mitchell is superintendent of the company.

The East Kentucky Publishing Company, Whitesburg, Ky., is asking for prices on a gasoline engine of limited capacity. Address W. M. Hall.

A. J. Baldwin & Co., Dawson, Ga., are inquiring for prices on an engine lathe with 12 or 13-in. swing and 6 to 8-ft. bed.

Andrew Hess, Conway, Ark., is erecting a machine shop and also has undeveloped plans for a foundry to handle iron and brass.

The Pinnacle Wagon Mfg. Company, Cumberland Gap, Tenn., will erect a factory at Middlesboro, Ky., it is reported. The estimated cost is \$10,000. Building will not be begun until next year.

The Hazard Light & Water Company, Hazard, Ky., which was recently reported incorporated, is now ready to purchase machinery for its electric light plant.

Kenneth Meguire, Louisville, and L. W. Farmer, Barbourville, Ky., have taken under lease 10,000 acres of coal lands in Harlan County. As soon as railroad extensions are completed to the property, operations on a large scale will be begun.

The Kentucky Sand & Gravel Company, Owensboro, Ky., is installing new equipment and greatly enlarging the capacity of its plant.

R. G. Goodin and Taylor Estes are building a plant for the manufacture of brick and drain tile at Lebanon, Ky.

The Consumers' Ice & Cold Storage Company, Lexington, Ky., has completed plans for a new factory to cost \$60,000 and has purchased a site. Contracts for the erection of the plant and the installation of equipment will be let at once.

The Kentucky Southwestern Railway, Light & Power Company, recently reported in process of organization for the purpose of constructing traction lines in western Kentucky, has filed articles of incorporation at Wilmington, Del. E. F. Wheaton, Henderson, Ky., is the promoter of the company.

The American Rotary Hoisting Engine Company, Owensboro, Ky., which recently incorporated, is having its machine made in a local shop and will not erect a plant immediately, although this is intended to be done later on.



## THE MACHINERY MARKETS

J. E. Burke and W. E. Daily, Morristown, Tenn., have announced plans for a garage and automobile repair shop. They will purchase machine tools and other equipment for the shop.

The American Cotton Hull & Fiber Company, Charlotte, N. C., will erect a plant at Memphis, Tenn. The material used will be cottonseed hulls. C. H. Reynell is general manager of the company.

L. S. Colyar is reported to be planning the organization of a company for the purpose of establishing a steel plant at Chattanooga, Tenn. He is quoted as saying that he has acquired a large acreage of ore lands.

The Chattanooga Milling Company, Chattanooga, Tenn., has been incorporated with \$25,000 capital stock by R. B. Henderson, D. S. Henderson and others.

The Rockwood Machine Works, Rockwood, Tenn., will build a machine shop. A building, 50 x 100 ft., will be erected. E. W. Morris is manager of the concern, which has secured most of its equipment.

A plant for the manufacture of Portland cement may be built at Knoxville, Tenn., by H. R. Blauvelt. A company has been proposed with a capital stock of \$600,000.

The Nashville Bridge Company, Nashville, Tenn., has secured the contract for the erection of a municipal garbage plant. Water-tube boilers of special design which are required for the plant will be manufactured by contract.

The Hicks Sheet Metals Works is erecting a plant at Knoxville, Tenn., for handling general sheet metal business. J. C. Hicks is manager.

J. P. Smartt, Ed McCallie and associates of Chattanooga, Tenn., have purchased the plant of the Hercules Mfg. Company, Chattanooga, and will continue it, planning enlargements in the near future. It turns out gas generating plants.

John W. Staples, Harriman, Tenn., will erect a mill for the manufacture of tight cooperage stock.

The Chilhowee Mountain Mining & Mfg. Company, Chilhowee, Tenn., is reported to be planning the development of iron ore lands in that vicinity. The company has established offices at Maryville, Tenn.

The Virginia Bridge & Iron Company, Roanoke, Va., has been awarded a contract for the erection of a steel bridge over Hiwassee River at Charleston, Tenn. The award was made by the commissioners of Bradley County, the company's bid being \$21,975.

John G. Duncan Company, Knoxville, Tenn., is asking for prices on woodworking machinery, including a planer and matcher.

The Agricultural and Mechanical College for Negroes, Huntsville, Ala., will erect a manual training school for girls at a cost of \$17,000.

The Choctaw Portland Cement Company, Harts-horne, Okla., is in the market for a second-hand hoisting engine.

The Beaver Dam Machinery Company has filed articles of incorporation at Spartansburg, S. C. A. D. Cudd is president of the company, Arthur Irwin, vice-president, and E. P. Parks, secretary and treasurer.

The city of Jessup, Ga., is planning the construction of a system of water works and will require a steel stand-pipe, a power plant, etc. James Steele is city clerk.

Bonds of \$25,000 have been voted on for the installation of water works at Dayton, Tenn.

The Herb Mfg. Company, Bristol, Tenn., has purchased the plant of the Ordway Mfg. Company at that place and will install motor-driven machinery for the manufacture of bank, store and office fixtures. The company will require woodworking machinery and a dry kiln, in addition to electric power equipment.

The Henry Vogt Machine Company, Louisville, Ky., is in the market for power plant equipment, a 28-in. or 30-in. planer, die blocks, a power shear for handling stock up to 3¼ in., and a drilling and tapping machine for use in a forging plant.

The National Paper Company, Atlanta, Ga., will erect a four-story factory building, 150 x 200 ft., at a cost of \$60,000.

The Southern Casket Company Louisville, Ky., is in the market for a small cut-off saw table.

The Moss Point Fertilizer Company, Moss Point, Miss., intends to build a plant for producing about 10,000 tons of fertilizer a year. The company will shortly let contracts for the building and will install special machinery.

### Indianapolis

INDIANAPOLIS, IND., September 19, 1911.

The Merchants' Heat & Light Company, Indianapolis, has increased its capital stock from \$500,000 to \$3,000,000. For several months negotiations have been in progress for a merger of this company with the other public utility companies of the city, but the effort has failed and the Merchants' Company is preparing to enlarge its plant and extend its service. Edward L. McKee is president of the company.

The Michigan City Commercial Club, Michigan City, Ind., has been organized to develop the manufacturing and commercial interests of the city. The directors are William B. Manny, J. N. Lautmann, Fred N. Smith, George T. Vail and A. J. Henry.

The Vulcan Steam Shovel Works, Evansville, Ind., will start operations September 25, and the event is to be celebrated by a meeting of citizens at the plant who will listen to speeches by those through whose efforts the large industry was secured for the city.

Robert W. Howard has secured from the Town Council of Kentland, Ind., a franchise for an electric light plant.

The contract for a new high school at South Bend, Ind., Jno. A. Wood, superintendent, has been let. The equipment of the school will include a machine shop.

Fire destroyed more than one-half the buildings of the Big Four Railroad shops at Brightwood, a suburb of Indianapolis, September 14, including the coach shops, millrooms, power house, paint shops and engine room. The roundhouse, storerooms, machine shops, tinshops and repair sheds were saved. The loss was \$300,000, with insurance of \$150,000. F. M. Lawler is master mechanic.

The Merchants' and Manufacturers' Club has been organized at Elwood, Ind., to promote the commercial and manufacturing interests of the city. The president is M. J. Fogarty; the secretary, R. J. Weber.

A turbine engine and electric generator will be purchased for the municipal electric plant at Anderson, Ind. The members of the Board of Public Works are visiting various manufactories inspecting their products.

The Kerr Murray Cressler Mfg. Company, Ft. Wayne, Ind., has increased its capital stock from \$100,000 to \$300,000. The company conducts a foundry, machine and boiler manufacturing business. Alfred D. Cressler is president.

A building permit has been taken out at Evansville, Ind., has been incorporated, with \$10,000 capital stock, factory to be built by the H. Fendrich Cigar Company.

The Dean Brothers & Daniels Mfg. Company, South Bend, Ind., has been incorporated, with \$40,000 capital stock, to manufacture washing machines. The directors are A. J. Dean, F. M. Dean, A. J. Daniels.

The Utica Stone, Lime & Supply Company, Utica, Ind., has been incorporated, with \$10,000 capital stock, to quarry stone. The directors are L. H. Meyer, Joseph Keehner and C. W. Kelly.

The Metal Wheel Company, Knox, Ind., has decreased its capital stock from \$30,000 to \$20,000.

The Central Indiana Gas Company, Muncie, Ind., has increased the common stock from \$500,000 to \$5,000,000 and has issued \$500,000 preferred stock.

### The Pacific Coast

PORTLAND, ORE., September 12, 1911.

The month has opened with a fairly good demand for small machine tools and general shop supplies, though few inquiries have been received for more than two or three tools, and few shops in this territory are buying any heavy equipment. The local shops are well occupied, however, and there is no complaint regarding the general situation. The lines of machinery which occupy the leading position in this territory, logging and mill equipment, continue in strong demand, and projects are under way for the installation of several new mills during the coming year. The coastwise lumber trade is now in good shape, and a movement has been started among the lumber interests of the entire Pacific Northwest for the formation of a corporation to control the export business, from which considerable ultimate benefit is expected. The demand for agricultural and irrigating equipment is well sustained, and numerous inquiries are coming out for electric and hydro-electric machinery.

## THE MACHINERY MARKETS

The United States Steel Products Company has leased the sixth floor of the Selling Building, Sixth and Alder streets, this city. E. R. Eldredge, Portland representative of the company, has for some time been located at Ninth and Irving streets.

Bids will be received up to September 30 at the Quartermaster's office, Fort Stevens, Ore., for the construction of an addition to the ordnance shops at that place.

It is announced that contracts will be let for the erection of the plant of the Olympic Portland Cement Company at Bellingham, Wash. The Spaulding Lumber Company, Salem, Ore., is planning to make a large addition to its mill within the next few months.

Inquiries have been received at Everett, Wash., from an Eastern concern which proposes to erect a veneer plant at a cost of about \$150,000.

The Seattle Tool Company, Seattle, Wash., has been incorporated, with a capital stock of \$40,000, by J. H. Talbott, O. M. McConnell and W. M. Hamlin.

It is reported that the C. A. Smith Lumber Company will add a re-manufacturing plant to its mill at Marshfield, Ore., increasing its daily capacity by about 100,000 ft.

The Seattle Frog & Switch Company, Seattle, Wash., is planning to move to larger quarters at Earlington, on the Chicago, Milwaukee & Puget Sound Railroad.

The O'Connell Lumber Company, whose plant at Winlock, Wash., was recently destroyed by fire, has about completed plans for its new mill. It will have a daily capacity of 150,000 ft., and will be operated by electricity.

J. M. Clapp has secured a \$113,000 contract for harbor work at Everett, Wash., and is now assembling the necessary equipment.

The Albina Engine & Machine Works, this city, has taken a contract for repairs to a Columbia River lightship.

The Vulcan Iron Works, this city, has a contract for repairs to the lighthouse tender Manzanita. The Vulcan Iron Works is moving its plant to the Alaska dock, where the work will be done.

### Texas

AUSTIN, TEXAS, September 16, 1911.

Noticeable improvement is observed in the demand for machinery of various kinds in Texas and throughout the Southwest. Many new industrial plants are being installed and others are in contemplation. It is expected that during the fall and winter months the activity in machinery trade will exceed all previous records in this State. The political situation in Mexico is still very acute and business is practically suspended all over the republic. The favorable indications for tranquillity that seemed to exist a short time ago proved to be but a temporary lull in the disturbed situation. American machinery manufacturers are not attempting at this time to do much business in that country.

The Continental Wax Company which recently installed a large plant at Sanderson, for the manufacture of wax out of the candelilla plant which grows wild in that region, is preparing to install 10 other plants of similar character in the upper Rio Grande border section of the State. Oscar Pascius is manager.

The St. Louis, Brownsville & Mexico Railroad will soon begin the erection of a pre-cooling plant at San Benito, to cost \$75,000. The Commercial Club has donated a site for the proposed plant.

The Commercial Club of San Benito is promoting the establishment of a creamery.

D. B. Chapin and associates, who are preparing to erect a large dam across Devil's River near Del Rio, to obtain water supply for irrigating about 150,000 acres of land and to operate a hydroelectric plant that they will install, have completed the surveys for the proposed works. The dam will be about 185 ft. high. The main canal will carry the water over a large scope of country, enabling the reclamation of land that is now unsuited for agriculture.

The Sabine Supply Company, Orange, is in the market for a second hand Soule steam feed made by the Soule Steam Feed Works, Marine, Miss. The company is also inquiring for a second hand 10-hp. reversible hoisting engine and second hand 14 x 6 Bradford lathe with a 6-ft. bed.

The Decatur Electric Lighting & Power Company's plant at Decatur was entirely destroyed by fire, entail-

ing a loss of about \$6000. The plant will be rebuilt and the damaged machinery replaced as soon as possible.

Laredo is planning the erection of a modern water works plant.

The San Antonio, Rockport & Mexican Railway Company has been formed with headquarters at San Antonio for the purpose of constructing a line of railroad from San Antonio to Brownsville, 240 miles, with a branch line to Port Aransas, 110 miles. It has a capital stock of \$350,000. Incorporators are James A. White and Thomas C. Berry of San Francisco, Samuel Collier of Seattle and, H. W. Quinan, R. R. Russell, J. H. Hajle, John T. Rives, A. L. Davis, J. G. Fowler and A. L. Matlock of San Antonio.

The Western Mines & Development Company will erect considerable new machinery at its property near Tombstone, Ariz.

The Live Oak Development Company will install a 150-ton ore reduction mill at its mine near Miami, Ariz.

The Alamos Mining & Exploration Company will build a reduction mill at its mine at Plamosos, Sonora, Mexico.

The Compania el Barrenoy Anexas will install a 20-stamp mill at its mine near San Luis Potosi, Mexico.

The Cananea-Boston Mining Company will add an electric hoist and other equipment to its property near Cananea, Mexico.

The Mowry Mining Company, Nogales, Ariz., will spend about \$1,500,000 in development work and machinery at its Nowry and Selaro mine.

The City Council of Tucumcari, N. M., has taken steps to erect a fire proof fire house and a 100,000-gal. steel tower for the water works plant.

The Red River Valley Company, Tucumcari, N. M., is sinking four deep wells on the Bell ranch near that place for the purpose of developing a water supply.

The Canadian & Ute Creek Oil, Land & Irrigation Company will drill a deep well near Tucumcari, N. M., for the purpose of developing water for irrigation.

L. J. Carter will build a pumping plant for the purpose of irrigating a large tract of land near Deming, N. M.

The Land Vineyard Company will install a 1500-gal. pump at a well on its land near Deming, N. M., for irrigation.

Morris & Co. will build a cold storage plant at El Paso at a cost of \$18,450.

The City of Las Cruces, N. M., has voted \$75,000 bonds for constructing a new sewer system and water works plant.

The Las Cruces Electric Light Company, Las Cruces, N. M., has issued \$75,000 of bonds for the addition of new machinery and other improvements to its electric light and power plant.

### Eastern Canada

TORONTO, ONT., September 18, 1911.

The election campaign has extended into the period when the autumn trade becomes vigorous. It cannot be said that the public are so engrossed in the campaign as to be inattentive to their proper business to any extent. As a matter of fact, trade is not falling off, but if there were no election excitement, and if there were no uncertainty as to tariff changes, it would probably be of materially greater volume than it is. Manufacturers of machinery and some other classes of articles are showing a lively interest in the issue, being apparently apprehensive that if the present reciprocity agreement is established, it will soon be followed by another embracing manufactured articles. It is also held that if railroads carry farm produce from Canada to the United States they will not return light, but will bring back manufactured articles. The supply of money is somewhat stinted, but no serious contraction in operations is caused thereby. Funds ought to be more plentiful a month hence, when the crop movement, the financing of which calls for careful husbanding of energy on the part of the banks, will then be through the period of greatest strain. Keen interest is being taken in this market by British, German and American selling agencies at the present time, and this fall there promises to be more activity on the part of outside houses than ever before.

It is estimated that fully 90 per cent. of the equipment of Canadian machine shops is either American or what is described as American-Canadian. British manufacturers of equipment make slow headway here because of delay in delivery.



## THE MACHINERY MARKETS

German manufacturers are giving a great deal of attention to the Canadian market at the present time. Ham, Baker & Co., London, England, have the contract for supplying the sewage screening plant, elevation and conveyors for the city of Toronto's new sewage disposal system.

The city of Quebec will spend \$700,000 on new water works.

J. Grant Henderson, commissioner of industries at Hamilton, Ont., announces that the Grasselli Chemical Company of Cleveland will in a short time establish a Canadian branch in Hamilton. A site of 160 acres has been purchased for the company in the north-eastern part of the city. It is stated that a plant to cost \$1,000,000 will be erected and that 1000 hands will be employed.

The factory of the Woodstock Wool Working Company, Woodstock, Ont., was destroyed by fire.

The McClary Mfg. Company, London, Ont., is adding to its factory buildings a three-story structure with a ground area of 100 x 120 ft.

The Smith Foundry Company, Fredericktown, N. B., has awarded a contract for the erection of a large new building to take the place of the one recently destroyed by fire.

The ratepayers of Hamilton are expected to vote next January on a by-law to raise \$150,000 for the laying of a new water intake, the installing of new high-level pumps and the purchase of machinery.

The Hamilton Gear & Machinery Company, Toronto, is building a new factory.

The Hull Electric Company, Aylmer, Que., is preparing to erect a substation to furnish additional power for railway operations.

The John Palmer Company, Fredericktown, N. B., is about to erect a building to be used for factory purposes to cost \$25,000.

J. Darch & Son, London, Ont., are preparing to add to their factory capacity and put in new machinery.

The Hobbs Mfg. Co., London, Ont., maker of plate and stained glass, is adding to its factory buildings.

G. A. Hulland & Son, Montreal, are erecting stores and offices to cost \$100,000.

The Steele Briggs Seed Company, Toronto, is putting up a warehouse to cost \$100,000.

The city of Montreal is planning the erection of a machine shop to cost \$60,000. Machinery worth \$20,000 for iron-working purposes will be required.

J. L. Dennison-Taylor, Toronto, is putting up a grain elevator and feed mill in the city to cost \$100,000.

The American Cyanide Company, Niagara Falls, Ont., will put up another building to cost \$225,000.

The Montreal Terra Cotta Lumber Company is building a plant at Lakeside, near Montreal, to cost \$200,000.

U. H. Dandurand, Montreal, has organized a syndicate to build near that city a model municipality on a site of 363 acres near the Lachine Rapids Hydraulic & Power Company's plant.

The Canadian Consolidated Rubber Company, Montreal, is building a large extension to its factory premises in that city. The addition is to cost \$250,000.

The Thorold Silver Smelter Company, Thorold, Ont., in which R. W. Leonard, president and general manager of the Coniagas mines at Cobalt, is largely interested, has been offered inducements to move to Niagara Falls, N. Y. The smelter sends \$500,000 worth of silver to the United States every year. About 150 men are employed at the smelter.

The Harbor Commissioners of Montreal will spend \$6,000,000 on improvements within the next two years. The announcement is repeated that Vicars Sons & Maxim will install a large shipbuilding plant adjoining the dry dock site.

The Algoma Iron Works, Ltd., Sault Ste. Marie, Ont., which does a general jobbing, foundry and machine business, is building new shops as the property it now occupies has been purchased by other parties.

### Western Canada

WINNIPEG, MAN., September 16, 1911.

Though the crop, which is now entirely harvested, is large, it is not quite up to the expectations that were held to when cutting began. Early frost did some damage. Another point to be noted is that creditors are taking advantage of the prosperity of the Western farmers to press for settlement. Land speculation will not be allowed to absorb and tie up so much money as in past years. Bankers will insist more than ever

before that customers keep their assets in as compact a form as possible for the requirements of their own business. It is evident that of the money realized from the crop the proportion left in first hands as spending power will not be more than the farmers need, and it will be a not excessive stimulus to business.

The Hall mines smelter at Nelson, B. C., covering 13 acres of ground, and one of the largest plants of its kind in Canada, was destroyed by fire. An estimate of the loss is \$750,000.

R. V. Winch, Vancouver, B. C., is acting as agent for an English syndicate that is preparing to erect a very large cement plant near Chilliwack, B. C.

The Saskatchewan Co-operative Elevator Company, Regina, Sask., has given contracts for the construction for 40 elevators, to be built on concrete foundations with frames of extra heavy steel. The equipment is to be of the most modern character.

The Dryden Timber & Power Company at Dryden, Ont., near Kenora, is now busy upon the construction of its works.

Officials of the Grand Trunk Pacific Railway Company say that the company's coast fleet will be equipped with oil-burning apparatus in the near future.

Among the cities visited by representatives of the Mueller Mfg. Company, Decatur, Ill., to select a site for a Canadian factory is Edmonton, Alberta.

G. M. Phillips, secretary-treasurer of the town of Scott, Sask., will receive up to noon, September 25, tenders for supply and delivery of the following machinery and materials: Tender A., generator and exciter and switchboards, transformers and meters, series tungsten street lighting system, pumping machinery; Tender B., two pneumatic storage tanks.

The Gaetz Mfg. Company, Red Deer, Alberta, has instructed C. A. Julian Sharman, architect, to get out plans for the extension and doubling of its factory building on the corner of First avenue East and First street North. Tenders will be called for at once. The addition will be two stories and basement, uniform with its present factory.

The by-law which was submitted to the ratepayers of Portage la Prairie, Man., to issue debentures to the amount of \$110,000 for the purchase by the city of the plant of the Central Electric Company, was approved by a majority of 228, and the city takes possession of the plant at once.

Plans are far advanced for the building of a smelter for the treatment of zinc ores of the Slocan District, B. C., by natural gas. The plant will be located at some point in the natural gas belt along the line of the Canadian Pacific Railway, either at Medicine Hat or at Dunmore Junction, a few miles distant.

The City Engineer of Chilliwack, B. C., which has a large programme of public works in hand, has under consideration the purchase and erection of a large concrete pipe building plant.

A viaduct to cost \$550,000 is being recommended by the City Council of Vancouver, B. C., and a by-law for that purpose will be voted on by the ratepayers in January.

The Hudson Bay Company is pushing forward the construction of new buildings at Victoria, B. C., Calgary, Alberta and Regina, Sask.

George White & Son, manufacturers of agricultural machinery, are putting up a building at Brandon.

The city of Edmonton, Alberta, has under consideration the ordering of a 10,000,000 gal. pump as a reserve for its new water works system.

By-laws are being prepared for water works, sewerage, etc., for the city of Regina, Sask. The whole expenditure proposed by the city is not far short of a million dollars.

The Canadian West Lumber Company, West Vancouver, is planning the construction of a mill to cost \$60,000.

The Canadian Summer Iron Works, Vancouver, B. C., headquarters at Everett, Wash., will erect a small foundry and iron works at Burnaby, B. C.

The ratepayers of Prince Albert, Sask., have endorsed a by-law to raise \$775,000 for the purpose of developing 3500 hp. at La Colle Falls, near that city.

The Town Council of Innisfail, Alberta, has decided to submit a by-law to the people to raise \$15,000 to install an electric light plant.

The Anthes Foundry Company, Ltd., Toronto, has decided to build a \$125,000 foundry in Winnipeg.

The plans and specifications for the new 4,000,000 gal. per day water works plant to be installed in Saskatoon, Sask., are being prepared by Consulting Engineer Moley of New York.

# Current Metal Prices.

The following quotations are for small lots, New York. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report

IRON AND STEEL—	
Bar Iron from Store—	
Refined iron:	
1 to 1½ in. round and square....	lb 1.70¢
1½ to 4 in. x ½ to 1 in. ....	lb 1.80¢
1½ to 4 in. x ½ to 5-1.....	lb 1.80¢
Rods—% and 11-16 round and square.	lb 1.80¢
Angles:	
3 in. x ½ in. and larger.....	lbs. 1.90¢
3 in. x 3-16 in. and ½ in. ....	2.30¢
1½ to 2½ in. x ½ in. ....	2.05¢
1½ to 2½ in. x 3-16 in. and thicker.....	1.95¢
1 to 1½ in. x 3-16 in. ....	2.05¢
1 to 1½ in. x ½ in. ....	2.10¢
¾ x ¾ in. ....	2.20¢
¾ x ¾ in. ....	2.25¢
¾ x ¾ in. ....	3.45¢
¾ x 3-32 in. ....	3.90¢
Tees:	
1 in. ....	2.35¢
1½ in. ....	2.20¢
1½ to 2½ x ½ in. ....	2.00¢
1½ to 2½ x 3-16 in. ....	2.10¢
3 in. and larger.....	2.95¢
Beams	
Channels, 3 in. and larger.....	1.90¢
Hand—1½ to 6 x 6-16 to No. 8.....	2.10¢
Burden's "H. B. & S." iron, base price.....	2.95¢
"Burden's Best" iron, base price.....	3.15¢
Norway bars	3.60¢

Merchant Steel from Store—	
Bessemer machinery.....	per lb. 1.80¢
Toe calk, tire and sleigh shoe.....	2.50¢@3.00¢
Best cast steel, base price in small lots.....	7¢

Sheets from Store—	
Black	
One pass, C.R. soft steel. R. G. cleaned.	
No. 16.....	lb 2.45¢ 2.75¢
Nos. 18 to 20.....	lb 2.50¢ 2.85¢
Nos. 22 and 24.....	lb 2.55¢ 2.95¢
No. 26.....	lb 2.60¢ 3.05¢
No. 28.....	lb 2.95¢ 3.30¢

Russia, Planished, &c.	
Genuine Russia, according to assortment	lb 12 @14½
Patent planished, W. Dewees	
Wood.....	lb A. 10¢; B. 9¢ net
Galvanized	
Nos. 12 and 14.....	lb 2.75¢
No. 24.....	lb 3.10¢
No. 26.....	lb 3.30¢
No. 28.....	lb 3.60¢
No 20 and lighter 36 inches wide, 25¢ higher.	

Genuine Iron Sheets—	
Galvanized	
Nos. 22 and 24.....	lb 5.50¢
No. 26.....	lb 6.00¢
No. 28.....	lb 7.00¢

Corrugated Roofing—	
2½ in. corrugated.	Painted. Galv.
No. 24.....	100 sq. ft. \$3.75 \$4.70
No. 26.....	100 sq. ft. 2.85 3.90
No. 28.....	100 sq. ft. 2.60 3.65

Tin Plates—	
American Charcoal Plates (per box)	
A.A.A. charcoal:	
IC, 14 x 20.....	\$6.65
IX, 14 x 20.....	7.00
A. charcoal:	
IC, 14 x 20.....	\$5.60
IX, 14 x 20.....	5.70

American Coke Plates—Bessemer—	
IC, 14 x 20.....	107 lb. \$4.50
IX, 14 x 20.....	5.50

American Terne Plates—	
IC, 20 x 28 with an 8 lb. coating.....	\$8.70
IX, 20 x 28 with an 8 lb. coating.....	10.70

Seamless Brass Tubes—	
List November 13, 1908.	Base price, 18¢

Brass Tubes, Iron Pipe Sizes—	
List November 13, 1908.	Base price, 18¢

Copper Tubes—	
List November 13, 1908.	Base price, 21¢

Braze Brass Tubes—	
List February 1, 1911.	19½¢ lb

High Brass Rods—	
List February 1, 1911.	14½¢ lb

Roll and Sheet Brass—	
List February 1, 1911.	14½¢ lb

Brass Wire—	
List February 1, 1911.	14½¢ lb

Copper Wire—	
List February 1, 1911.	14½¢ lb

Base price, Carload lots mill 13½¢	
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Copper Sheets—	
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Sheet copper hot rolled, 16 oz. (quantity lots).....	lb 17¢
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Sheet copper cold rolled, 1¢ lb advance over hot rolled.	
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Sheet copper polished 20 in. wide and under, 1¢ square foot.	
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Sheet copper polished over 20 in. wide, 2¢ square foot.	
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Planished copper, 1¢ square foot more than polished.	
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METALS—	
Tin—	
Straits pig.....	lb 46 @47

Copper—	
Lake ingot.....	lb 14 @14½
Electrolytic.....	lb 13½ @14
Casting.....	lb 13½ @14

Spelter—	
Western.....	lb 7 @7¼

Zinc—	
No. 9, base, casks.....	lb 8¼¢ Open... lb 9¢

Lead—	
American pig.....	lb 5½ @5¾
Bar.....	lb 6½ @6¾

Soldier—	
½ & ¾, guaranteed.....	lb 27¼ @28
No. 1.....	lb 25¼ @26
Refined.....	lb 24¼ @25

Prices of solder indicated by private brand vary according to composition.	
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Antimony—	
Cookson.....	lb @10¼
Halletts.....	@10
Other brands.....	@9½

Bismuth—	
Per lb.....	\$2.00 @ \$2.25

Aluminum—	
No. 1 aluminum (guaranteed over 99% pure), in ingots for remelting.....	21¢ and 22¢
Rods and Wire.....	Base price 31¢
Sheets.....	Base price 33¢

Old Metals—	
Dealers' Purchasing Prices Paid to New York.	

Copper, heavy and crucible.....	
Copper, heavy and wire.....	10.75 to 11.00
Copper, light and bottoms.....	9.50 to 9.75
Brass, heavy.....	7.25 to 7.50
Brass, light.....	5.75 to 6.00
Heavy machine composition.....	9.25 to 9.50
Clean brass turnings.....	7.00 to 7.25
Composition turnings.....	8.00 to 8.25
Lead, heavy.....	3.75
Lead, tea.....	3.50
Zinc, scrap.....	4.00



# NICHOLSON



Time is not the only saving effected through the use of **Nicholson Files**.

Their hard cutting surface and perfect temper gives them a **lasting quality** that makes them by far the most **economical** of all files to use.

Our Catalog shows what styles to use. Our book, "File Philosophy," tells how best to use them.



# FILE



PROVIDENCE,

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S. A.